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Information Bureaux

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of the

SEVENTEENTH CONFERENCE

held at

The Royal Society, London

NOVEMBER 7th and 8th, 1942

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1943

The Association of Special Libraries and Information Bureaux

31, MUSEUM STREET, LONDON, W.C.1.

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12	A. BEHR.	British Aluminium Co., Ltd.
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16	WILFRED BONSER, B.A., PH.D., F.L.A.	University of Birmingham.
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26	MISS M. COULDREY, B.A.	I.C.I. (Head Office), Ltd.
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41	ALLAN EVANS.	Office of Strategic Services, U.S. Government.
42	F. C. FRANCIS.	Bibliographical Society.
43	H. E. L. FREYTAG, B.Sc.	British Non-Ferrous Metals Research Association.
44	F. M. GARDNER, F.L.A.	Luton Public Libraries.
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57	F. HENN.	Imperial Institute.
58	T. M. HERBERT.	L.M.S. Railway.
59	FRANK R. HERRON.	
60	MISS M. C. HILDYARD, B.A., PH.D.	Birkbeck College Library.
61	MISS I. HINCHLIFF, M.A.	United Dairies Central Laboratory.
62	MISS A. HOLROYD.	Home Office & Ministry of Home Security.

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79	A. C. MANN.	Callender's Cable & Construction Co.
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104	MISS M. SHAW, B.Sc.,	J. Lyons & Co., Ltd.
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106	G. A. SHIRES.	Dunlop Rubber Co., Ltd.
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108	MRS. R. SIMON.	ASLIB Staff.
109	DR. S. W. SMITH.	Institution of Mining & Metallurgy.
110	T. D. SMITH.	Wrought Light Alloys Development Association.
111	J. F. STANLEY, B.S., S.C.G.I., A.M.I.E.E.	British Standards Institution.
112	G. A. STOLAR.	Palestine Potash, Ltd.
113	C. A. STOTT.	School Library Association.
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121	ARTHUR WHEEN.	Victoria & Albert Museum Library.
122	MISS M. E. WHITAKER, B.Sc.	British Non-Ferrous Metals Research Association.
123	P. WHITE.	B.S.A. Guns, Birmingham.
124	MISS E. G. WIGMORE.	Medical Research Council Library.
125	J. E. WRIGHT.	Post Office Engineering Research Station.

Editorial Note.

THE papers that follow constitute a record of the proceedings of the Seventeenth Conference of the Association. Written papers were, as a rule, prepared in advance by the speakers, and these have been reprinted in full. No verbatim reports of the discussions were made, but as full a report as possible has been printed. The editors take this opportunity to acknowledge their indebtedness to all those members of the Conference who have sent in notes of their contributions.

An index of the contents of the Report is printed at the end. Copies of the Reports of fifteen previous Conferences are still available, and the Fifth Report contains an index to the first five. The Report of the Tenth Conference is out of print.

These Reports are indexed in the Industrial Arts Index of The H. W. Wilson Company, of New York.

31, MUSEUM STREET,
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Contents.

PAGE

INTRODUCTORY NOTE	10
-----------------------------	----

SATURDAY, 7th November.

Chairman : SIR HARRY LINDSAY, K.C.I.E., C.I.E. (Director of the Imperial Institute)

Annual General Meeting	56
----------------------------------	----

Report on the Year's Work of ASLIB	11
--	----

International Systems and Standards.

Opening Address by SIR RICHARD GREGORY, Bart, F.R.S.	14
--	----

Chairman : PROFESSOR A. C. EGERTON, F.R.S. (Royal Society)

Training in the Use of Libraries as Part of the School Curriculum.

MR. C. H. C. OSBORNE (Hon. Sec. School Libraries Section, Library Association)	21
--	----

Instruction in Library Use : A needed Addition to the University Curriculum.

PROFESSOR R. S. HUTTON, D.Sc., M.A. (Goldsmiths' Professor of Metallurgy, University of Cambridge)	27
--	----

Chairman : DR. LUXMOORE NEWCOMBE (National Central Library).

A Proposed Union List of Periodicals in British Libraries.

MR. THEODORE BESTERMAN	30
----------------------------------	----

Agriculture and the War Stimulus.

MR. C. S. ORWIN (Director, Agricultural Economics Research Institute). (<i>Contributed</i>)	37
---	----

SUNDAY, 8th November.

Chairman : COLONEL E. E. B. MACKINTOSH, D.S.O. (Director and Secretary, Science Museum).

Microfilms in Libraries.

MR. E. LANCASTER-JONES, B.A. (Keeper, The Science Library) . . . 34

Chairman : MR. T. R. DAWSON (Research Association, British Rubber Manufacturers).

Some Methods used in the Special Library of a Research Department.

MR. J. E. WRIGHT (Post Office Research Station) . . . 43

War-time Problems in Books and Binding.

MR. B. M. HEADICAR, F.L.A. 40

The Special Library in Time of War.

MISS E. M. R. DITMAS, M.A. (*Contributed*) 52

Final Session. 55

Accounts for the Year Ended 30th June, 1942 57

Reports from :

The National Central Library 60

Citizens Advice Bureaux 60

Appendix : Discussions following Papers 61

Index 68

THE OBJECTS OF THE ASSOCIATION ARE : To examine, foster, and co-ordinate the activities of special libraries, information bureaux, and similar services ; to act as a clearing-house for these services ; to develop the usefulness and efficiency of special libraries and information bureaux under whatever titles they may function ; and generally to promote, whether by conferences, meetings, or other means, the wider dissemination and the systematic use of published information.

The Association aims at assisting members who desire information of any kind to get into touch with the appropriate library or other body specialising on the subject ; it does not itself attempt to build up any centralised organisation to provide the detailed information direct.

Introductory Note.

The gathering of members and visitors to the Seventeenth Annual Conference of ASLIB on November 7th and 8th, 1942, marked the happy resumption of these meetings after their suspension through war conditions. The papers for the 1939 Conference, which was cancelled at the last moment, had been printed so that, although Sixteen Reports of Proceedings have been published, this was in fact the first actual Conference gathering since 1938. War conditions affected the Conference in several directions, it was non-resident and the sessions were fewer and had to end earlier than usual, but the occasion was, nevertheless, a very real success and a good augury for the future. A list of those attending is printed on pages 5 and 6.

By kind permission of the Royal Society, the meetings were held in the Royal Society's rooms at Burlington House, an ideal location for a non-resident Conference. The proceedings opened with the Annual General Meeting, when Sir Harry Lindsay, President of the Association during the difficult war years, took the Chair. This was immediately followed by the Opening Session of the Conference proper, when the address was given by Sir Richard Gregory, Bart., F.R.S., on "International Systems and Standards."

Owing to black-out difficulties, it was found necessary to close the proceedings just before 6 p.m. each day. Since Mr. Orwin was unfortunately unable to present his paper, "Agriculture and the War Stimulus" in person, and it would have been difficult for anyone else to deal adequately with points that might have been raised in a discussion of his paper, it was reluctantly decided to omit it from the programme though it is included in the printed Report. The limitations of time available also applied to the Secretary's paper which accounts for the fact that there are no recorded discussions on these two papers. According to custom there was no discussion of the address given at the Opening Session.

The restrictions of the Paper Control necessitated the issuing of the pre-prints in pamphlet form and not, as usual, in page proofs. It is for this reason that the discussions on the papers are collected together in an Appendix, starting on page 61. The same obstacles have caused certain discrepancies of layout to the detriment of the appearance of this Report. Readers are asked to bear this in mind when tempted to criticise.

A successful innovation at this Conference was the last session when an opportunity was given for the members to discuss matters of ASLIB interest with the Honorary Officers and the General Secretary in an atmosphere that was less formal than that of the Annual General Meeting. An account of some of the main points of the discussion will be found on page 55.

In closing this Introduction, the General Secretary would like to apologise for the delay in the publication of the Proceedings. Many factors contributed to this but the outstanding difficulties were the result of war conditions and were quite outside ASLIB's control.

The Year's Work of ASLIB, 1941-42

No period in ASLIB history has been more momentous than the year under review. All through the war ASLIB has been strongly and indeed proudly aware that it has large and vitally important services to render but our ambitions have been restrained by the usual British public and official disregard of information services and by the old ASLIB anxiety—lack of money. In fact, however, the war has given ASLIB its chance to prove itself, particularly in its function as co-ordinator of information sources. As link after link of the complex network of pre-war channels of information broke through evacuation, through the closing of libraries, through destruction by enemy action, and through the hundred and one obstacles that must arise in war conditions, ASLIB worked to secure the broken ends, marking the gaps, noting new sources of information, and in general striving to maintain the communications necessary to the research work of its members.

THE PRESIDENT.

Sir Harry Lindsay, K.C.I.E., C.B.E., Director of the Imperial Institute, took office as President of ASLIB in 1939 and maintained this link with the Association throughout the following difficult war years. For the coming year, 1942-43, Professor R. S. Hutton, D.Sc., M.A., Goldsmiths' Professor of Metallurgy at Cambridge University and Prime Warden of the Goldsmiths' Company for this year, has been nominated as President. We pay tribute to Sir Harry Lindsay's invaluable support of the Association and part from him with a regret that is tempered only by the knowledge that we shall retain his friendly interest, but we welcome Professor Hutton, to whose energies the Association largely owes its original creation and who for many years was Chairman of its Council.

THE ASSOCIATION'S COUNCIL AND EXECUTIVE COMMITTEE.

The creation of an Executive Committee to deal with the urgent problems arising from ASLIB's rapid development was reported in the last summary of the Year's Work. Except for August, this Committee met monthly and to its labours must be ascribed much of the success that has attended ASLIB's progress during the past year.

The full Council met once only but all its members receive the Agendas and the Minutes of the Executive Committee, and various members have attended meetings of the latter body when any matter has arisen of particular interest to them. Mr. Edward Carter was elected Chairman of the Council and also of the newly formed Executive Committee; Mr. E. Lancaster-Jones was re-elected Vice-Chairman. During the course of the year Sir David Chadwick, K.C.M.G., C.S.I., C.I.E., Secretary of the Imperial Agricultural Bureaux, and Miss I. Shrigley, Librarian of the Institute of Bankers, were co-opted to the Council and to the Executive Committee.

The audited accounts for the year ended June 30th, 1942, have been circulated to all members and presented for acceptance at the 1942 Annual General Meeting.

It will be seen that this year the accounts fall under two headings: the accounts for the ordinary activities of ASLIB which show a satisfactory increase in turn-over and a favourable balance of £111 12s. 2d. and the accounts of the "European Periodicals Survey" financed by the Rockefeller Foundation, the balance of which is returnable to that organisation unless specific authority is given by the Trustees. ASLIB is not in the acutely dangerous financial position that existed some years ago but its increased income is taxed to the uttermost to keep pace, in staff and equipment, with its vastly increased responsibilities. Membership of the Association has risen satisfactorily and steadily—(328 as against 297 at the same period last year)—calls on ASLIB's services also increase steadily. The implied testimonial to ASLIB's power to "deliver the goods" is satisfactory but the fight to keep abreast of opportunity without secure financial backing is a perpetual strain on all responsible. Makeshift tools and inadequate clerical help can be tolerated where there is no great pressure of work but they become a menace when quick service is required. Not for the first time in ASLIB's history the General Secretary sympathises with the despair of the Israelite foreman, when asked to make bricks without straw! The Executive Committee, aware of this situation, have appointed a Sub-Committee to consider what can be done, and valuable time and trouble have already been given to the problem by Mr. F. C. Mitchell, Mr. E. Lancaster-Jones, and Mr. E. Carter under the Chairmanship of Mr. Theodore Besterman.

THE LOCATION INDEXES TO PERIODICALS.

In 1941, with the help of the Royal Society and with funds provided by the Rockefeller Foundation, ASLIB made a survey of the deficiencies in the receipts in libraries of Great Britain of copies of current scientific and technical periodicals originating from European countries. This survey, reported to the Royal Society in August, 1941, left in existence an invaluable index to the location of such periodicals as had been received in this country after May, 1940. The index is still maintained and is consulted almost daily by those who wish to know: (a) whether a particular issue of a particular periodical has been received in this country, (b) its conditions of accessibility.

Under the auspices of the British Council and on the recommendation of the Anglo-Soviet Scientific Collaboration Committee, ASLIB is now engaged on a similar survey of British library holdings of scientific and technical periodicals coming from the U.S.S.R. Here the delays and hazards of war transport have resulted in gaps in the holdings of many libraries, but the Survey has shown the interesting fact that in most cases the issue missing in one library is to be found elsewhere. The survey is being compiled as an Index that will be maintained for the use of libraries and accredited research workers and it is hoped that a summary of its findings will soon be ready for circulation.

ASLIB PUBLICATIONS.

The number of non-member subscribers to the *ASLIB Book-List* (quarterly recommendations of recently published scientific and technical books) is now 392, of which 236 are sponsored by the British Council.

The issue of the ASLIB War-time Guides to British Sources of Specialised Information continues as fast as clerical labour can be secured. The Third Guide, on *Electrical Engineering and Telecommunications*, has been issued, and a Fourth, on other forms of Engineering, is being compiled.

The quarterly Bulletin, *ASLIB Information*, continues but has been reduced to a single sheet in compliance with the restrictions of the Paper Control.

These, with the Report of the Conference Proceedings, are the only publications which it is possible to issue under present staff conditions, but several others will be taken in hand as soon as the opportunity occurs. A second edition of the *Classified List of Annuals and Year Books* is overdue, and a third edition of the *Select List of Standard British Scientific and Technical Books* would be useful.

OTHER ACTIVITIES.

As might be expected, the last six months of the period under review showed a great increase in the use of the Enquiry Bureau and of the Book Location service. 538 enquiries have been registered during the twelve months and, in general, these only include such enquiries that entail correspondence. Where there is shortage of staff, it is not possible to record the frequent telephone enquiries which can be answered on the spot, and into this category fall most of the enquiries connected with the use of the two Location Indexes to Periodicals, and of the older Index to House Journals.

ASLIB is represented on the Executive Committee of the National Book Council and on the Committee of the British Standards Institution which is dealing with the work of editing the English edition of the Universal Decimal Classification. This is in hand, and it is hoped that sections covering the Introduction, Auxiliary Tables and classes 0 and 5 will soon be on sale. Owing to the paper shortage the edition will be strictly limited and orders should be placed as soon as possible. Particulars can be obtained from the British Standards Institution, the British Society for International Bibliography or from ASLIB.

In closing this year's summary of ASLIB's work, we have more than our customary debts of thanks to pay. The *Book-List*, the two *Location Indexes*, and most of ASLIB's other services are built on the foundations of friendly co-operation, co-operation for which ASLIB is grateful and friendship of which it is proud.

E. CARTER.

E. LANCASTER-JONES.

E. M. R. DITMAS.

International Systems and Standards

By SIR RICHARD GREGORY, Bt., F.R.S.

About a century ago, national industries were becoming international in their outlook and a new stage of modern civilisation may be said to have begun. The Great Exhibition of 1851, housed in an impressive glass and iron structure erected in Hyde Park, London, which afterwards became the Crystal Palace at Sydenham, was the first representation of modern applications of science and art to productive industry. It was described as an "Exhibition of the Works of Industry of all Nations," and the hope was expressed that the Exhibition would tend to harmonise the world by bringing together many nations in friendly intercourse and common interests. The Exhibition brought together under one roof specimens of the products and manufactures of Great Britain and the Colonies, and of all the chief States of Europe, whether actual or potential rivals. In the light of later events, the impartial scope and spirit of this international enterprise may be judged by the fact that a Council medal of the Exhibition was awarded to Friedrich Krupp of Prussia for "cast steel of superior and novel quality."

Parliament was not directly concerned with this Exhibition, and no Government grant was made in support of it. The Exhibition was, however, most successful and resulted in a net profit of £180,000, which was used to purchase the Kensington Gore Estate of about ninety acres in partnership with H.M. Government for the sum of £342,500. A few years later the Exhibition Commissioners repaid the balance, thus becoming owners of a property which increased enormously in value in succeeding years. The Commissioners gave the site upon which the Royal Albert Hall was erected and also provided the land upon which now stand the Natural History Museum, the Imperial Institute, the Science Museum, the Imperial College of Science and Technology, and other great national institutions.

There have been many international exhibitions since 1851, but this was the pioneer of them all, and it demonstrated the industrial resources of the nations which took part in it as well as the extent of world markets in them. The International Exhibition held in London eleven years later led to the formation of the International Working Men's Association, now known as "The International," at a great public meeting in 1864 of artisans from many countries, and thus brought conditions of labour into the economic field. In the following year an International Telegraph Convention was held to regularise systems of transmitting telegraphic signals, and in 1874 the General Postal Union was formed. These were the beginnings of international trade associations, unions and relationships. The Postal Union is the best example of organisation of systems and standards on an international basis. For its service the world is the unit and there are no separate territories or boundaries. When the idea of international postal relations was conceived eighty years ago, the difficulties of adjusting postage rates and transport conditions between countries in different stages of development must have seemed almost insurmountable, yet the fundamental principles of the International Postal Convention in 1875—the American Civil War and the Franco-German War intervening—have proved sufficient to support the stupendous world structure of the Union at every point of contact.

It is necessary for manufacturers to adopt and maintain standards of measure-

ment for their products, whether for domestic or for foreign trade. Standardisation within and between industries leads to better understanding and co-operation in the common interests of the producer and the consumer. It is increasingly important for the maintenance and development of foreign trade and is the best means of ensuring fairness of exchange and facilitating industrial operations. After the last War, one of the outstanding developments in the chief industrial countries, and perhaps more particularly in Great Britain and the United States, was that of co-operation in standardisation of products of allied or related industries on a national scale.

So far back as the beginning of this century, a small group representing civil, mechanical and electrical engineering was set up in Great Britain as the British Engineering Standards Association, which was incorporated by Royal Charter in 1929 and is now the British Standards Institution. There are two kinds of standardisation—one concerned with fundamental standards and units of measurement, and the other with the rather wider field of industrial simplification and uniformity. The latter involves the adoption of standard specifications of material and method in all branches of industry where they can be usefully applied and they are constantly being added to and revised to meet new industrial needs.

For inter-Imperial trade it is desirable to have common agreement upon standards of measurement based upon the British system of weights and measures. The British Standards Institution exists to ensure this uniformity of principles and practice of standardising bodies in all parts of the Empire. It has also the duty of converting British standard specifications into those of other countries having standardised systems, in order to facilitate foreign trade. As, however, the tendency for many years has been towards the adoption of the Metric System in new industries, and this system is already used in most countries of the world, there is every reason to believe that it will become truly international in its service and that national and Imperial standards will have to be adapted to it for purposes of world trade. In recent years the scope of the work of the Institution has been very greatly enlarged, and at the present time it covers much work on rationalization and simplification with special reference to war-time needs in relation to materials in short supply and the use of substitutes.

The use of scientific principles as the basis of measurement came under consideration in the early days of electrical engineering. A century ago there was no settled system for the measurement and statement of electrical quantities, and all electrical measurements were merely comparisons between magnitudes of the same kind. The resistance of one conductor could be compared with that of a particular piece of wire and the electromotive force of one battery could be compared with that of another, but there were no recognised relationships between these quantities or fundamental standards to represent them. The German physicist, W. E. Weber, conceived the idea of expressing the value of any electrical quantity without reference to any quantity of the same kind, and in terms not involving any physical constants except the units of length, time and mass.

The British Association took up the subject in 1861 at the suggestion of Lord Kelvin, and the result of reports of its committee was the establishment of the coherent system now adopted everywhere in science and engineering. After much discussion and correspondence, it was decided to adopt the centimetre, the gramme and the second as the primary units of length, mass and time to which the various quantities used in electrical measurements could be referred. This is the C.G.S. system, and all values of electrical quantities are expressed in these units. For practical purposes, standards of electrical resis-

tance, current, electromotive force and power have been adopted by international conferences as particular magnitudes of the centimetre, gramme and second. Germany, France, Italy and Great Britain are respectively represented in the names of these fundamental electrical units by Ohm, Ampere, Volt (Volta) and Watt. Several years ago, Professor G. Giorgi, of the University of Palermo, proposed a new system of electrical units based upon the metre, kilogramme and second (the M.K.S. system), and the International Electrotechnical Commission recommended in 1938 that this system should be adopted in all countries. The system is in no way antagonistic to the G.G.S. system, and for instructional and practical purposes it has decided advantages in simplifying relationships between fundamental electrical, mechanical and magnetic units.

In science, and to an increasing extent in engineering, measurements are usually expressed in the international units of length, mass and time. For each of these fundamental quantities it is necessary to have a primary standard of reference. The primary standards of length and mass are kept at the International Bureau of Weights and Measures at Sèvres, near Paris. They are the International Prototype Metre and the International Prototype Kilogramme. The centimetre is $1/100$ of the standard metre, and the gramme $1/1000$ of the standard kilogramme. The standard international unit of time is one second, or the 86,400th part of the mean solar day.

With the introduction of railway systems, a standard time had to be adopted for the time-tables of trains. In Great Britain the standard time adopted was that of Greenwich, but as the local times of parts of the United States differ by several hours from one another, it was impracticable to use a single time standard for the whole country. The running of long-distance trains in times which differed greatly in different States was so confusing that a remedy had to be found; and it was produced by a Scotch Canadian, Sir Sandford Fleming, in 1878. His proposal was to legalise a universal day, beginning at mean noon of Greenwich time, the hours being counted 0 hour to 24 hours. A few years later a conference held at Washington approved the adoption of a single prime meridian, and also Sir Sandford Fleming's principle of dividing the whole earth into twenty-four time zones, each separated from the next by one hour. This zone system of daily time reckoning on a uniform and universal plan has become truly international and has superseded by fixed standards the medley of prime meridians and local times which kept peoples apart and hindered the development of their common interests.

The division of the whole interval of day and night into twenty-four parts or hours, each of which was subdivided into parts like minutes and seconds, goes back to Babylonian times six thousand or so years ago. (The division of the angles in a circle into 60 by 60 or 360 degrees has the same origin). The day and the night were each given a duration of twelve hours, but the lengths of the hours differed locally and with the seasons. With the introduction of clocks, it became necessary to establish a standard time interval independent of the varying lengths of the local day from one solar noon to the next. The average interval between successive noons became this standard as the mean solar day, which is the common day of civil life, and gives rise to mean solar time, or mean time. From about the end of the eighteenth century, mean time has been used in most countries instead of local solar time.

The Standard Time of a country or region is reckoned from a particular meridian, as it would be confusing to use a number of mean local times. Since the adoption of the zone system, standard times are referred to twenty-four meridians separated from Greenwich by a certain number of hours, with the zero hour at midnight and reckoned up to twenty-four hours, or in Great Britain up to twelve hours ante-meridian and twelve post-meridian. For

practical purposes, the rotation of the earth upon its axis is invariable, and so is that of the second, or $1/86,400$ th part of a day, derived indirectly from it. The unit measure of time is, therefore, the same in all countries.

Various standards of measurement of length and mass (or weight) are in everyday use in different parts of the world and they impede foreign trade transactions because of their number and complication. In 1875, an International Conference on Weights and Measures fixed the standards of the International Metric System, and the International Bureau at Sèvres was afterwards established to preserve them. All scientific measurements are expressed in terms of the metric system, and in most countries the use of this system of weights and measures has been adopted. It was legalised in Great Britain in 1897, but was not made compulsory, though many Chambers of Commerce and other organisations have often urged its adoption, and the Decimal Association has persistently carried on a campaign in favour of it. Developments of mechanical engineering have, however, made a large general public familiar with a number of metric measures. Radio wave-lengths are expressed in metres, motor car and aeroplane parts in millimetres or other sub-divisions of the metre, and bores of guns and similar ordnance dimensions in the same units.

The Metric System of weights and measures is truly the only system which can claim to be international in its scope and standards; and its use is likely to be extended after the present war. It does not matter much what standards or values are used for special trade or commercial transactions within customary regions or countries, but for business outside such areas, or with other peoples, fixed mercantile standards of an international kind are essential, and those of the Metric System have been proved by adoption in most countries of the world to provide what is needed for international business.

In establishing the Metric System on the Arabic scale of numerical notation and extending it to decimal fractions, French scientists at the close of the eighteenth century used the best methods of easy reckoning known in the history of mathematics. Their system also provided for a simple and uniform scale of relationships between the multiples and sub-multiples of the standard instead of the varying and unrelated quantities preserved in such Tables as those of British weights and measures upon which so much time has to be wasted in school and in everyday calculations.

By adopting the decimal scale of notation in the Metric System the founders of the system used a natural plan of counting based upon the ten fingers of human hands and customary among more peoples than any other scale. A duodecimal scale has certain advantages over a decimal scale, as it permits simpler expression of halves, thirds and quarters, but it is futile to suggest the general adoption of a twelve or dozen scale either for national or international use. Whatever system of reckoning is used to express numbers and fractions, quantities will continue to be divided into halves, quarters and so on in everyday speech and practice, and new standards of weights and measures will be thought of in old denominations both locally and nationally.

For monetary transactions, most countries use a decimal system of calculation and the relative values of the currencies are expressed in decimal units and fractions of a standard, such as the dollar or the pound. The value of the coinage of a country expressed in terms of that of another is the exchange value and varies with the general social credit or stability of the country. There is no fixed standard of credit for all countries and therefore no international system of values of goods and services of which money is the usual medium of exchange. The most important economic post-war problem will be to establish stabilisation of currencies of the chief countries of the world on the basis of collective security.

Money is not needed for the exchange of one commodity for another by barter, and trade can be carried on in this way with gestures or drawings. Primitive man was able to represent objects and motions by drawings and by doing so he used a sign language understood by all peoples. Sir Richard Paget, who has devoted much attention to this subject, has shown that the close relationship between the movements of the hand and mouth would associate the symbolising of objects with sounds and gestures and thus combine art and emotional expression in a sign language. The representation of objects is still preserved in the Chinese writing of a few characters, and in the infancy of the language two or more characters were combined to suggest a third thing or idea. The Chinese language was afterwards built up of characters representing sounds or phonograms instead of pictorial symbols or ideographs. An educated Chinese to-day will, however, draw ideographs to be read by a fellow countryman who speaks a different dialect.

Drawings provide a universal means of representing objects, and their characters also convey individual or composite emotions and meanings. Many early forms of writing are conventional characters developed from pictographs of this kind, and out of these conventionalised marks alphabets were constructed or characters were combined to represent syllables. All human beings express certain emotions, such as anger and fear, by much the same sounds, signs and gestures, and all can interpret simple picture writing, as all can understand the meaning of actions reproduced in moving pictures, silent or sound. There are, however, many conventionalised forms of characters to represent these sounds and thoughts by written or printed words, and these combinations make up the many languages of the world.

Among the important problems of an international kind to be promoted now and after the war is that of a means of expression in a language easily learnt and used by all civilised peoples of the world. The International Morse Code of signals is an example of an accepted system of alphabetical and numerical communication, and what is wanted now is an auxiliary vehicle of language which will be as widely understood. The subject of an international auxiliary language has long been under discussion, but we seem to be no nearer agreement as to what this language should be than we were after the last war. In 1921, the British Association published a careful and comprehensive report on this subject, prepared by a committee representing humanistic as well as scientific interests, and in collaboration with the chief associations concerned with classical and modern languages as well as by consultation with a number of learned societies.

The British Association Committee was appointed after the International Research Council, at a meeting in Brussels in 1919, had taken up the question of an international auxiliary language and recommended the formation of an International Committee to enquire into the position and outlook of the subject. It was hoped that a central international organisation would be formed, under the League of Nations, and be empowered to make the final selection of the international auxiliary language, if feasible, and to take measures to ensure for it the greatest possible degree of stability. Chairmen were appointed to represent national committees for France, Italy, Japan and Belgium, and the chairman of the British Association Committee undertook to represent Great Britain on the Committee of the International Research Council.

The desirability of an International Auxiliary Language having been unanimously approved by the British Association Committee, attention was given to the advantages and disadvantages of the following three types :

- (1) A dead language, for example, Latin ;
- (2) A national language, for example, English ;
- (3) An invented or artificial language, for example, Esperanto and Ido.

The claims for the use of each of these languages as an International Auxiliary Language were justly and concisely stated by their own specialists in the report of the Committee. After careful consideration of this and other evidence from high authorities at home and abroad, the Committee found itself unable to pronounce judgment in favour of a particular auxiliary language for international use. The conclusions reached may be expressed as follows :

- (1) Latin is too difficult to serve as an International Auxiliary Language, and its advantages are outweighed by its disadvantages.
- (2) The great international languages of the past have all borne the marks of imperial prestige which prevented them from being welcomed by alien races. The adoption of any modern national language by the common consent of the chief nations is therefore unlikely, as it would confer undue advantages and excite jealousy, however impartial the promoters of the language might be.
- (3) Invented languages constructed on scientific principles and adaptable to many diverse requirements are practicable means of international communication. They are neutral and have advantages of simplicity not possessed by most national languages. What auxiliary language of this kind will meet with general approval remains to be decided by international agreement.

In the interest of international communication and the free expression of ideas, it is to be hoped that academic as well as scientific and commercial organisations will assist in the movement towards an agreed auxiliary language. A committee of the British Association on Post-War University Education has dealt with the subject recently in one of the sections of its report. It recommends that apart altogether from the academic study of language and literature, every university should require its students to be able to make themselves understood, by speech and writing, in an auxiliary international language. The Committee suggests that the Universities Bureau of the British Empire, in consultation with the American Universities Bureau and the Association of University Professors and Lecturers of Allied Countries in Great Britain, could take up the subject very appropriately and prepare a report upon it. There is no better way of promoting interrelationships between the peoples of the world than that of a simple common language; and the construction of such an instrument should not be beyond the powers of responsible authorities—literary, scientific and commercial—working together in a common and needful purpose.

ADDENDUM.

As science is an international study, there must be common standards and units of measurement in all its branches in order to ensure uniform systems of comparison of results. After the discovery of radium and other radioactive elements, it became necessary to give quantitative values to their properties and to express them in agreed units. This was done by an International Radium Standards Commission, which adopted the quantity of radium emanation (radon) in equilibrium with one gramme of radium as the standard unit and gave the name Curie to it. Units of physical science have thus entered the field of medicine in radioactive therapy. Other International Biological Standards are summarised in the following interesting article from the October issue of *Monthly Science News* published by the British Council : —

INTERNATIONAL BIOLOGICAL STANDARDS.

One of the many useful services rendered by the Health Organization of the League of Nations has been the establishment and supply, on an international basis, of a series of 'standards of reference' by means of which the potency of many important specific agents used in medicine can be accurately determined and expressed in a commonly accepted system of notation. The series comprises standards for the assay of the antitoxins, the arsphenamines, the vitamins, insulin, the active principle of the posterior lobe of the pituitary body, many of the newly introduced sex hormones and the heart drugs. Simply stated, these standards are representative samples of the specific substance for which they are destined to serve as the basis of assay, preserved under conditions ensuring their permanence; that is, they are solid substances reduced to the absolutely dry condition, dispensed in sealed containers in the absence of oxygen, and stored at low temperature.

Before the war the international biological standards for the arsphenamines, the vitamins, the hormones and the heart drugs were maintained at the National Institute for Medical Research, Hampstead, London, and those for the antitoxins and tuberculin at the State Serum Institute, Copenhagen. From these two centres the standards were supplied to nearly every country in the world. By their almost universal adoption and application a kind of international currency—a common notation based on common standards and units—has been established, to the great advantage and benefit alike to the manufacturer, the research worker, the doctor and—most of all—the patient.

After the occupation of Denmark, the League of Nations asked the Medical Research Council to undertake the supply of the standards for the antitoxins and tuberculin to those countries which had hitherto received these essential materials from Copenhagen. As a complete series of these standards is maintained at Hampstead for supply to this country and the countries of the British Commonwealth of Nations, the Council was able to comply with this request and thus help to maintain this international service to the public health of all countries. Moreover, since the occupation of Denmark created the situation that the international standards were all deposited in the Hampstead Institute, to guard against their loss and ensure the maintenance of the 'biological yard sticks', which had been created as the result of so much international research and co-operation, the stocks were divided and portions deposited in several cold storage depots throughout England; and, as a further precaution, sets of the standards have been deposited on the American continent.

Thus, in spite of the difficult conditions created by the war, this service, devised and established for the benefits of all the peoples of the world, has been maintained: it has, in fact, continued to grow since an international standard for vitamin E was established and made available in 1941, and the work towards the establishment of a standard for the important anticoagulant, heparin, has been completed.

Training in the use of Libraries as part of the School Curriculum.

By C. H. C. OSBORNE.

The English tradition of a School Library is a place where children can read for recreation, satisfy their individual tastes in "out-of-school" subjects, and engage in voluntary study, occasional or habitual, and where, if it is desired, help in the work of the classroom can be secured, as well as information about matters of social, political and intellectual moment. These are the five aims of a school library recommended to ASLIB by Dr. Cyril Norwood in 1936,¹ the year in which a new start in school libraries was made with the publication of a Report to the Carnegie United Kingdom Trust of a committee of inquiry into the provision of libraries in secondary schools in Great Britain and Northern Ireland.²

What progress has been made in developing the idea of a school library in the last six years? First, it seems to me, there has been a recognition of the needs of the non-bookish child. "We had," writes W. H. Auden, "a magnificent library, perhaps the only requisite [on the academic side of a school], because real people, who can learn, given that chance, will teach themselves." But all our pupils are not Audens. A magnificent library may leave a large proportion of the children relatively untouched. In a small public school with a well-chosen library of 3,500 books, it was found in 1938 that while, over a period of two terms, on an average five books were borrowed each term per boy in the school, between a fifth and a quarter of the boys in each term took no book out of the library for reading in their boarding houses or homes, though some no doubt read books in the room and conned the periodicals. The habit of reading, the acquisition of what has been called "the library habit," is, in fact, not acquired automatically by all.

Secondly, it is increasingly realised that there must be training in the technical aspects of the use of a library, that there are certain skills which children need to acquire in the use of a collection of books, and for which provision must be made in the time-table.

Thirdly, there is an increasing desire to relate the school library much more closely to the teaching in the subjects of the curriculum, so that the library may be the "centre of intellectual life for the whole school,"³ "the workshop of the arts side," and a means of evolving "a new technique of teaching and a new conception of education."

Progress along these lines has mainly taken the form of introducing Library Periods into the time-table and of experiments in their use. Four types, or ways of using a Library Period, have been distinguished by Mr. H. B. Lawson, H.M.I.⁴ These he has called: (1) Library Training, i.e. instruction in the working and contents of the library; (2) Browsing, or Independent Reading; (3) Research, or Private Study; (4) Book Lore. A further distinction is necessary into Library Periods conducted by the School Librarian, and Library Periods conducted by other members of the teaching staff in co-operation with the Librarian.

I. LIBRARY TRAINING.

This Mr. Lawson rightly considers essential for the younger pupils and, speaking in 1938, he noted that this was the type of Library Period gaining ground most rapidly. The time allotted to such instruction is sometimes a quite inadequate single talk to new-comers to the school, or a talk once a term or once a year. What is needed is "a weekly library period for all beginners (i.e. for the lower forms) and at one other stage of their progress through the

¹ See references at end of paper.

school." This, Mr. Newby considers, is a minimum requirement.⁵ An experiment in Library Training at Aldenham School indicates the scope of the work. Mr. C. A. Stott describes how a period once a week, taken from the English allocation, was spent with middle school forms, of average age 15 to 15½, in their pre-certificate year. "My general aim in a year's work is to give the boys : (a) a general familiarity with the rules, arrangement and working of the library, with reasons for them ; (b) some knowledge of the history and physical make-up of books ; (c) some knowledge of the "parts" of a book (preface, contents, text, index, etc.), and the use of a book for extracting information ; (d) some elementary training in the use of encyclopaedias, dictionaries and one or two other important books of reference ;⁶ (e) elementary rules for exploring the library for information on given topics."⁷ The syllabus for the third term's work and Mr. Stott's concluding remarks may be quoted in full.

"Term III.—Practice in Collection of Material on Definite Principles.

(1) Rules for collection of material : 'concentric' method, whereby one starts with the most general books and finishes with the most specific, e.g. for such a subject as The Black Death there are : (a) the encyclopaedias ; (b) European Histories ; (c) general English Histories ; (d) Histories of England in the fourteenth century or the reign of Edward III. Usefulness here of a clear understanding of the system of classification.

At first all that is done is to collect references to passages in the various books (author and title of book, volume, page, date of publication).

(2) Then follows the practical application of this to short essays, for which two or three periods may be allowed. The essays should be accompanied by short lists of the books consulted, possibly with brief criticism of each (perhaps three or four books). It is essential to choose subjects within the range of the child and the resources of the library. I think such subjects at this stage should be of a concrete type. The collaboration of subject teachers may be enlisted with advantage.

General Remarks.

I feel it is important to aim at as much variety as possible. I have found that it is usually sufficient to devote ten or fifteen minutes to talking ; the rest of the period is occupied with discussion or some practical application of the topic in question. With reference books especially it is wise not to attempt to be exhaustive, and to confine one's attention to books within the range of the child's experience.

Written work includes : (a) note-books kept throughout the year ; (b) various special questions ; (c) descriptions and rapid estimates of books ; (d) short essays on various subjects with bibliographies."

Such a systematic course of Library Training has its uses, and publishers are now beginning to provide text-books for class use with exercises in the different skills required.⁸ But though some drill is necessary, the likelihood of this formal training being carried over in regular use depends upon a love of reading for its own sake and upon children learning to find in books the material to satisfy their curiosity. For this reason the Library Training period will be most fruitful if it leads up to, and often out of, Library Periods of other types. Note-taking ; the use of an index or of a bibliography ; the value of reading round a subject and realising in some measure what philosophers mean by the unity of knowledge ; acquaintance with the facilities afforded by Public Libraries and with the services of the National Central Library ; the capacity to weigh the reliability of books ; and obedience to such "shining precepts" of the student⁹ as Lord Acton in his Inaugural Lecture said were the registered property of every school of historian, are taught not mainly in formal lessons but in the course of helping children to follow up their own interests. A fetish can be made of technical jargon and method.

2. BROWSING OR INDEPENDENT READING.

There should be time in the school hours for "learning to enjoy books away from the compulsion of the classroom." The importance of free reading has received fresh emphasis from the conclusions of Mr. A. J. Jenkinson's investigation recorded in *What do Boys and Girls read?* ¹⁰His analysis of the answers to a questionnaire filled up by 3,000 boys and girls of from 12 to 15 years in senior and secondary schools, showed first, that "a large part of the [private] reading of all [except the most literary and most developed] boys (and girls) of these ages remains trivial," and, secondly, that "improvements in literary taste occur as the boys [and girls] grow older, and are a direct function of growing up" ¹¹ and not the result of classroom teaching. He concludes "that a large supply of books and no teaching would produce similar or better results than does our present system of much teaching based on a few books, and that a rich supply of books, chosen with the cunning derived from knowledge and foresight, together with occasional stimulus from a teacher, would produce much better results. . . . Attempts to elaborate methods of studying books should be superseded by efforts to evolve methods of affecting the choice of books." ¹² The Library Period used for browsing affords the opportunity for devising and applying these methods.

In Mr. Lawson's experience the browsing period in schools had frequently been abandoned as "aimless and unprogressive and leading to boredom." Sometimes this was due to the lack in most school libraries of an adequate number of suitable books for the main school, i.e. those between the first year and the sixth form. ¹³ Mr. Lawson's opinion was that reading, "though free, must to some extent be purposive." Control and direction, however, must not destroy the initiative of the children. Miss Alice Carter, describing a free reading period at Dartford County School for Girls, declares that "the librarian's part in the library periods is to be alert to seize opportunities of stimulating and suggesting as they occur, but not to become too obvious: for the children the essential is to feel independent, and to learn to use and enjoy their freedom." ¹⁴ Mr. Jenkinson considers that the teacher should not veto or dissuade a child from following any desired type of reading, but try rather to direct his attention towards the better material within each type. "It is the function of the library to provide what can really interest every boy at every stage, and the duty of the librarian to see that he is getting not what he should, but what he can, like." ¹⁵ "A good teacher," says the Spens Report, "can do almost anything to induce a love of reading except teach it."

At the same time browsing periods do enable the librarian to suggest to the one-track reader adventure in neglected sections of the library; the specialisation of the curriculum makes the library period the best chance of stimulating broad interests "ranging over the whole field of literature irrespective of subject labels." ¹⁶ In addition to records kept by the librarian, records of reading in library periods, which may include books read out of school, with comments or criticisms, are frequently kept by the children themselves, either voluntarily or as a set requirement. Such a record enables the teacher or librarian, provided the child is willing for it to be inspected, "to see speedily where the interests of the child lie, and how far he is capable of forming judgments." ¹⁷ To older children, the keeping of a common place book, or book of extracts, may be suggested.

3. RESEARCH OR PRIVATE STUDY.

The third type of library period, which may arise out of the second, is devoted to original work done by a class or by individuals. The readers may be gathering material for an essay, or a lecture to be delivered to the form, or for their own instruction. The topic may be prescribed by a teacher, a "project," a Dalton, or "modified Dalton" assignment, ¹⁸ or each child may be entirely free in the choice of subject. The pupils may work individually, or in

small groups, and they may be studying different aspects of a general subject, the results of group or individual research being subsequently pooled for the benefit of all. For example, a Lower Fifth in the pre-certificate year at Elmhurst County School, Street, Somerset, were allotted one English period a week, together with one homework period, "for the preparation of a kind of term's thesis requiring the use of many books." These they found in the library, returning, owing to limitations of space, to their own classroom to read and write. At the end of term the teacher was given "substantial treatises, often attractively bound, and in a few cases, charmingly illustrated."¹⁹ The development of a particular interest by research of this kind tends to correct scrappiness. "A young reader who has read all he can find on Francis Place or Everest Expeditions or Christopher Wren or modern experiments in slum clearance, will not only have something which may develop into a scholarly knowledge of the subject he has chosen for special study, but will have, too, a standard of knowledge and understanding with which to compare his sparse knowledge and incomplete understanding of other subjects."²⁰

4. BOOK LORE.

Finally there is the use of library periods when the librarian or the teacher gives "readings from some of the great classics (especially from books not met in the ordinary curriculum)," and, in the higher forms, an effort is made "to give some glimpses into the history of real scholarship—the struggle to find out what an author really wrote and what he really meant."²¹

These four types of library period are not rigidly exclusive. To some extent they overlap, but all four are needed, and the preparation of children to use and enjoy books requires that a balance shall be kept between them. Though library training in the more specialised and technical sense of the term is the librarian's particular responsibility, it is not only desirable that he or she should directly undertake some work of all four types in library periods, but it is the librarian's task, in conjunction with the headmaster or headmistress, to draw up a scheme of library work in which the other subject teachers can co-operate. Comparatively few experiments of this kind have yet been made in this country. Usually the whole burden of library periods falls upon the librarian. But the Book Lore period should be one when "subject specialists discuss the library with a form from the point of view of their [own] subject,"²² and organised Research Periods should neither start in the Sixth Form nor be confined to the subject which the librarian happens to teach, or which he is otherwise competent to direct. As Mr. Lawson says: "There is more than one way of teaching anything. The coming of school libraries has created a new opportunity, inviting us to adopt existing methods. It may lead to such another revolution in teaching as that which followed the coming of science laboratories. Perhaps at any rate it will give to the arts side the stimulus it at present lacks as compared with the science side."²³

I am conscious that I may have suggested that more is being done in the schools than is in fact the case. The school library movement is still in its infancy, and the war has checked developments. There are still many secondary and even public schools where lack of books or of accommodation and equipment make a proper school library impossible. There are others not thus handicapped where the library is not fully used or properly used, even according to present-day standards. Recent statistics are not available, but in 1934 "of 470 schools that replied to an I.A.A.M. questionnaire, 163 were without a room set apart for the use of a library."²⁴ The Report to the Carnegie Trustees in 1936 suggested an annual library income of 3s. *od.* per pupil, with adjustments according to the size of the school. Thus a school of 200 would have £40 per annum, of 350 £50, of 500 or more £70, but, writing in 1939, Mr. John Garrett could report that "local authorities vary enormously in their generosity. One county allows as much as £40 a year, while another lags behind with only £5."²⁵ Where a separate room is available, open access and an Author Catalogue

are probably by now common; less frequent is the Classified or the Subject Catalogue. Often the system of classification is a home-made one, unsatisfactory in itself and as a preparation for the use of public libraries by the pupils when they have left school. As for the librarian, his or her work is usually a labour of love performed in scanty spare time. The Carnegie Report recommended that three to five periods a week should be allowed to teacher-librarians for their work in the library, in addition to ordinary free periods. But many teachers have not been given this allowance, and for the proper discharge of his functions the teacher-librarian of the future will need much more time than the minimum suggested in the Report, as well as some clerical assistance. The American ideal of full-time professional librarians is not acceptable to English teachers,²⁶ but our teacher-librarians need the status of a head of a department and some recognised professional training. Such training will have to be made available to far more teachers than have been catered for by the Board of Education vacation courses in the Organisation of School Libraries. The training, I suggest, should include attendance at a vacation course and the passing of an examination both in the essentials of general library technique and in the special work of a school librarian; provision should also be made for visits to other school libraries during term time. A certificate should be given to those who have successfully completed the training, and a certificated school librarian should be entitled to rank for salary as occupying "a post of special responsibility."²⁷

If members of ASLIB wish to see the teachers teaching children how to use books, they have first to press for the establishment of proper libraries in the schools. There are over 2,000 secondary schools "recognised as efficient" in Great Britain and Northern Ireland. Not more than 600 to 700 are represented in the two associations of teacher-librarians, the School Libraries Section of the Library Association and the independent School Library Association.²⁸ There are no figures to show how many school libraries belong to both associations, but it is probable that most schools with efficient libraries belong to one or the other, and it is certain that in many of the schools represented conditions are still far from satisfactory, in spite of much enthusiasm and devoted service in the last ten years. An indication of the extent to which library periods have been adopted is given by a questionnaire answered in 1940 by teachers of English in thirty schools. Eighteen answers were from boys' schools (one from Scotland), including seven public schools; nine from girls' schools; and three from mixed schools, one of them a commercial school, and one a "progressive school," working on a modified Dalton Plan. Only seven out of the thirty schools had library periods.²⁹

The examples I have given have been drawn from public and secondary schools. There is no time for me to deal with the problems of elementary and senior school libraries. I can only say that, as far as senior and central elementary schools are concerned, the Report to the County Councils Association of a special sub-committee in 1937 recommended that "subject to due allowance for the difference in age limits, the establishment of senior school libraries should follow, as far as possible, the lines adopted in making similar provision for secondary schools." The Board of Education's decision to make building grants for libraries in new senior schools seems to imply agreement with this recommendation. The Council of the Library Association had summoned a national conference to consider the library needs of junior, senior and central schools, but the outbreak of war led to its postponement. Both associations of School Libraries, however, are enquiring into the position of school libraries in all kinds of school after the war, and will shortly have before them the survey and report on post-war developments in the public library made for the Library Association by Mr. L. R. McColvin.

Nor have I had time to discuss the liaison between School Libraries and Public and County Libraries, nor to develop many details of the training of

children in the use of libraries, such as the work of pupil assistants. It must suffice to say that a considerable proportion of children can receive additional training and have their interest quickened, not merely by helping the librarian in matters of routine administration, like the return of books to the shelves, but in more educationally profitable work, such as indexing a pile of periodicals, or preparing bibliographies and catalogues, for example, a card index of historical novels, or of novels of geographical interest.

(For Discussion see page 61)

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- ² *Libraries in Secondary Schools*.
- ³ Foreword by the President of the Board of Education to *Libraries in Secondary Schools*, p. xiv.
- ⁴ *The School Library Review* (cited hereafter as S. L. R.), vol. II, no. 1, pp. 33-4, and *The School Librarian* (cited hereafter as S. L.), vol. II, no. 1, pp. 16-20.
- ⁵ S. L., vol. I, no. 2, p. 9. J. S. Newby (Headmaster, Whitcliffe Mount Grammar School, Cleckheaton, Yorks.)
- ⁶ See S. L., vol. II, no. 2, pp. 15-28 for an excellent list of General Reference Books for School Libraries with recommendations for a minimum outlay of £20.
- ⁷ S. L., vol. II, no. 1, pp. 23-4.
- ⁸ For example :
Wright, Walter D. *Are you Sure? Reference Work for Seniors* (with answers on perforated pages for easy removal), 1936. (Dent). 1s. 3d.
(400 graded questions based on a reference section of fifty pages, "set so as to represent as nearly as possible the books which boys and girls will have to use in later life.")
Chambers, F. W. *The Use of Reference Books*. 1936. (Macmillan). 1s. od.
(Lessons, as well as exercises, based mainly on dictionary, atlases, telephone directories and railway time-tables).
Both would provide useful drill in junior forms and meet the difficulty of providing each member of a class with a copy of the reference book under discussion.
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An excellent simple guide to reference books which might be used in conjunction with Swann's *Test Questions*, and which should certainly be in the school library).
Scripture, Elizabeth and Greer, Margaret R. *Find it Yourself*, revised and enlarged for English use by Arthur John Hawkes. 1936. (Alex. J. Philip, Gravesend). 6d. Teacher's edition 4s. od.
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⁹ They included "Learn as much by writing as by reading; be not content with the best book; seek side-lights from the others . . . see that your judgments are your own, and do not shrink from disagreeing; no trusting without testing . . . study problems in preference to periods."
¹⁰ Methuen, 1940.
¹¹ Ibid, p. 154.
¹² Ibid, p. 155, 157.
¹³ In a properly stocked school library there should be books suited to all ages in all the main subjects of knowledge, and dealing with all the interests which different types of children are likely to develop.
¹⁴ S. L. R., vol. II, no. 4, pp. 128-9.
¹⁵ Mr. H. B. Lawson, S. L., vol. II, no. 1, p. 19.
¹⁶ Ibid.
¹⁷ Ibid, p. 20. Miss Myall (Hinckley Grammar School).
¹⁸ Compare the reference to "the modified Daltonism so successfully established at Bryanston," by Mr. John Garrett, Headmaster, Raynes Park County School for Boys. "I have seen," he adds, "magnificent work done in this way at Blundell's. S. L. R.", vol. II, no. 4, p. 124.
¹⁹ S. L., vol. I, no. 2, pp. 13-14. Miss M. G. Pugh.
²⁰ Ibid, pp. 14-15. Miss M. A. Cook (Chichester High School for Girls).
²¹ Mr. H. B. Lawson, op. cit.
²² S. L. R., vol. II, no. 3, p. 100.
²³ S. L., vol. II, no. 1, p. 16. For the technique of co-operation between the librarian and subject specialists employing library periods as part of their syllabus, see important contributions by Mr. C. W. Pelham and Mr. T. O. Balk in S. L., vol. II, no. 1, and an experiment at Bolton School, described in S. L., R., vol. III, no. 1.
²⁴ *A Guide for School Libraries*, issued by the Incorporated Association of Assistant Masters in Secondary Schools. Oxford University Press, 1937.

²⁵ S. L. R., vol. II, no. 4, p. 123.

²⁶ The best account of the aim and method of library instruction in the high schools of the U.S.A. is *Teaching the Use of Books and Libraries*, by May Ingles and Anna McCague, 1933, N.Y. (The H. W. Wilson Co.).

²⁷ "At least one hard-headed L. E. A. has offered a responsibility allowance to the Librarians of those schools which have put into operation the chief recommendations of the Carnegie Report." Mr. J. S. Newby in 1937. S. L., vol. I, no. 2, p. 9.

²⁸ The existence of two associations is, of course, a weakness.

²⁹ *English in Schools*, edited by Denys Thompson, The Sharnbrook Press, Sharnbrook, Beds., vol. I, no. 1, pp. 33, 35.

Instruction in Library Use : A Needed Addition to the University Curriculum.

By R. S. HUTTON, D.Sc., M.A.

"The true University of our days is a Collection of Books. . . . It is a most important truth that the main use of Universities in the present age is that, after you have done with all your classes, the next thing is a great library of good books which you proceed to study and to read. What the Universities can mainly do for you—what I have found the University did for me—is that it taught me to read, in various languages, in various sciences ; so that I could go into the books that treated of these things and gradually penetrate into any department I wanted to make myself master of, as I found it suited me."

From—Thomas Carlyle Rectorial Address, Edinburgh, 1866.

"Let me say, as a public lecturer in one of our Universities, that in my opinion a guided access to the shelves of a great library is of far greater worth than attendance at lectures can possibly be. Lectures may stimulate ; private talk, in my experience, stimulates better. Both have their uses. But the true key to understanding is the key of a library."

Sir Arthur Quiller Couch—quoted in *Times Literary Supplement*, May 11th, 1922.

"Even now, though we gladly recognise the great advances that have been made, we are by no means satisfied that the true status of the Library in a University is really appreciated."

University Grants Committee Report, 1936.

As these quotations show the plea that I want this Conference to endorse has for long been formulated. Our own Association has on several occasions discussed this matter,¹ and at the Seventh Conference in Oxford in 1930 the following resolution was adopted :

This Conference, recognising the vital need for training students in the efficient use of libraries, urges University and other education authorities to consider the organisation of systematic instruction in this subject in all faculties. In each educational institution the librarian should give an annual lecture, to be attended by all new students, dealing with the library and its uses.

Despite the reference to Universities in this resolution no arrangements seem to have been made to bring it to the attention of University authorities ; and if we are to make better progress it would surely be desirable to ensure that our appeal reaches amongst others the Vice-Chancellors' Committee and the University Grants Committee. The report in 1938 of a Joint Committee of Associations concerned with Technical Institutions shows that much progress has been achieved in their library resources.

On this occasion we seem to be starting on a better foundation, for obviously if we can implant in the schools the desire and the aptitude to use books, the task at the Universities will be greatly facilitated. Mr. Osborne's paper shows what a powerful stimulus is being afforded by the School Libraries Section of the Library Association ; but however rapidly the example of the more progressive schools may spread throughout the school-world much remains to be done at the Universities and other places of higher education, since it is at this stage that a scholar has access to the more advanced and extensive literary resources and is ripe to use them. If the school teachers and school librarians

¹ See references at end of paper.

can encourage the native curiosity of the young and guide them to satisfy this curiosity in the library, we shall have the majority of students entering the University with some knowledge and love of books, with some ability to use dictionaries, atlases, simple reference books and the library catalogue, and with a residual thirst to delve into the larger resources of University Libraries.

SOME REASONS WHY INSTRUCTION IN LIBRARY USE IS NEEDED.

The task of a University is to prepare students for the most diverse post-graduate activities. Simultaneously, it has to provide a broad general education, to lay foundations for the advancement of knowledge, and within the scope of some limited subject to train those capable of becoming experts.

If one bears clearly in mind that the three or four years at the University are only the start of many years progressive self education, it is obvious that the curriculum should include instruction in the use of a library. Condensation for economy reasons is called for, so at the risk of misunderstanding and in the hope of receiving amendments and additions, the following objects of library instruction may be listed :

1. To acquire facility to work easily and familiarly with books in large libraries.
2. As a basis for continuation of self-education.
3. To develop initiative and independence.
4. To learn how to find books on some special subject.
5. To prepare survey from world-wide periodicals of some subject on which no book is sufficiently up to date.
6. To secure access to information on some subject outside one's normal interests.
7. To be able to find data as a basis for planning.
8. To study alternative views—comparison of authorities—well known practice of the historian but often of value in quite other directions.
9. To survey current affairs in daily, weekly, monthly or other periodical literature.
10. To develop ability to judge the comparative merits of books.
11. To acquire knowledge, skill in using it, and experience in where to find it, upon which power for leadership is based.
12. To enjoy some general acquaintance with books, their individuality, scope and location.

HOW IS INSTRUCTION TO BE GIVEN ?

It is probably no exaggeration to say that up to the present few University Libraries in this country have introduced any systematic teaching. Moreover, when guides to their libraries exist they are in most cases very condensed and lacking in imagination of the needs of new students for stimulative guidance.²

Even in the U.S.A. it is mainly during the last ten to fifteen years that this problem has been widely tackled ; but it has now become generally recognised, so that in the 1938 " College Library Standards " of the Carnegie Corporation, which has done so much to endow College Libraries in the U.S.A., we find the rule : " Formal instruction in the use of the Library should be given by the Librarian or some other competent instructor."

Opinions will doubtless differ as to the best methods of instruction, but it will probably be agreed that these must vary according to the prior library experience of the student and as to whether he has or has not already developed a predilection for books.

Many American Universities have introduced " Freshman Orientation " courses for the library. At the University of California for instance new students are required to come up a week in advance of the general opening of the session. The library instruction includes a free *Handbook for New Students* and mimeographed papers on the major library " tools." Great value is attached

to conducted tours of students through the library, with oral explanations at various points.

At this same University as Dr. Peyton Hurt has told us³ he has established a course for more advanced students, capable of dealing with a class of 200 for two lectures a week for one term and illustrated by a collection of duplicate copies of reference books and back numbers of periodicals. Here the object is to avoid unduly burdening the library with large numbers of students engaged in routine problems. Further details of this course are given in Dr. Hurt's papers.

Other American Universities have preferred smaller tutorial classes, one example being described in *Find it Yourself*⁴; this gives the details of eight graded lessons with test questions and seems to cover the ground comprehensively. A similar American publication *Guide to the Use of Libraries*⁵ is based on experience at the University of Illinois. For other American experience the periodical literature may be consulted but attention should be directed to two books.⁶

Both the large class and the tutorial class programme emphasise the importance of teaching the availability and the use of the most diverse reference books, and it is certainly here that many library users need assistance. The average student and even the majority of teachers are woefully ignorant of the existence and potential service of any wide collection of reference books.

Much attention is rightly paid to this subject in all schools for librarianship, and as it is probably just as necessary to train the public as to train the librarians to use reference books, possibly some adaptation of the library-school courses could be offered to University students generally.

Contrasted with these American methods of general instruction in the use of libraries it may be argued that the best approach is through the specialised subjects which the University student is pursuing in his Arts or Science course. No doubt there is much to say for such an approach, for it should be easier to arouse interest and to overcome apathy when the immediate results can be shown to be so beneficial.

On the other hand one of the greatest potential benefits of becoming a library habitué is the broadening influence it exercises, and this may be lost if at too early a stage the student becomes immersed in the boundless store of his specialist literature. The imaginative librarian who exhibits skill in planning an educational programme will strike a safe balance between the two extremes.

At any rate so far as science and technology are concerned the vast scope of periodical and other literature has made it quite impossible for any individual to survey thoroughly even a narrow special field. Hence the need for Information Officers and for such co-operation as Dr. S. C. Bradford⁷ has shown to be necessary, but progress in this direction depends upon the insistent demand which will surely arise when we have made more students acquainted with the elements of bibliographical research and taught them to realise the value of more extensive surveys of the world's knowledge in their chosen field.

As the length of this paper has already far exceeded the quota allowed, the list of some reference books which cover more advanced or special sides of this question must suffice.⁸

Finally may I quote Mr. W. W. Bishop⁹: "No one is really trained in the use of books who has not made himself master of a few books. His facility in the use of many books should and must leave him the leisure which is needful to absorb certain great works, to read himself into them and to make them part of his very being."

(For Discussion see page 62)

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⁹See Chapter II "Bridging the Gap" in Harviz Branscombe's *Teaching with Books: A study of College Libraries* (Chicago, 1940, American Library Association).

On a Proposed Union Catalogue of Periodicals in British Libraries.¹

By THEODORE BESTERMAN.

Neither the scarcity of paper nor the shortness of this conference permits anything like the full treatment I should like to give to so important a subject. All I can attempt is a series of compact discussion - stimulating notes. These notes are limited to certain specific aspects of the subject, which may be conveniently put as questions : 1. Is such a catalogue needed ? 2. Is it possible ? ; 3. How big would it be ? ; 4. What is a periodical ?

Is such a catalogue needed ? This is one question, at least, the answer to which is almost self-evident. Experience with existing co-operative catalogues, and especially in North America with the *Union list of serials*, has shown that comprehensive lists of periodicals find an unquestioned place among the select company of seminal works of reference. The only real question here is whether existing catalogues are not adequate, and if not, whether they cannot be supplemented without embarking on a great new venture.

I am quite clear that these questions must be answered in the negative. The function of a union catalogue is to serve as a single guide to the whole of a given field, in particular, to a field which cannot be covered by any one library. The success of such a catalogue is therefore in precise ratio to its approximation

to this ideal. By this test it must be admitted that there are very few true union catalogues of periodicals. When librarians and bibliographers of an earlier generation saw that single libraries had become inadequate reference units, they began to co-operate in the production of collective catalogues. It was natural to begin with immediately local co-operation and to go on to larger and larger groupings. For if the catalogue of the libraries in a given town is more useful than that of a single library in it, then that of a district and *a fortiori* of a country, is increasingly useful, and that by geometrical progression. Unfortunately, however, small-scale union catalogues continued to be produced at the same time as the larger works, with the result that there now exist no fewer than 300 union catalogues of periodicals. This proliferation of specialised catalogues of limited areas is regrettable, not only because the value of such catalogues is arbitrarily limited, not only because the librarian is compelled to buy and search a bookcase full of repetitive material, but also because every such catalogue, though it undoubtedly simplifies the larger task, at the same time comes to represent a vested interest which is sometimes difficult to override by a comprehensive scheme.

These objections apply even to the two largest works of this kind so far produced in this country, the *World list of scientific periodicals* and the *Union catalogue of the periodical publications in the university libraries of the British Isles*. The former of these works is primarily a British Museum product, and the latter has come to us from the National Central Library; it is therefore superfluous to say that they are both most admirable performances—within their limits. Unfortunately, it is precisely these limits we are now concerned with; are they desirable or even justifiable? I think not. Science is, to be sure, a large unit; but is it really so clearly defined and exclusive that its periodicals demand distinct treatment? The *World List* has judiciously abstained from defining its scope²; but within the universe of science there undoubtedly are distant areas, contiguous areas, extra-territorial areas, which it ignores. There is much scientific work published in periodicals which cannot possibly be called scientific; there is even more work of this type which, while it certainly cannot be called scientific on any orthodox definition, nevertheless is of increasingly immediate scientific relevance as science throws its beams down ever dustier and more distant corridors of human endeavour.

Similarly, in the case of the admirable *Union Catalogue*, university libraries obviously present a large and important population; but what is their distinctive characteristic that they should have been specially separated out for co-operative treatment? Convenience and economy will be advanced; but is it not clear and demonstrable that a single work of commanding value could have been produced with the expenditure of no more than a part of the labour and expense devoted to the various British sectional union catalogues of periodicals? If we are now to go on by means of independent lists until the whole field has been covered, I fear that our last state will be little better than our first. Quite apart from these theoretical considerations, the American *Union List*, a further edition of which is now well advanced, has demonstrated beyond a peradventure the immense benefits gained from a true union of forces directed at a really worth-while end.

Is the proposed union catalogue possible? Most certainly. What is possible in New York is possible in London. The mechanics of such an undertaking are quite simple. The largest possible list that can be compiled in one place is printed and circulated, either simultaneously or by a circulatory method, to the participating libraries, whose returns are collated and reduced to order (not so easy a task as it sounds, admittedly), and the work is ready for publication.³ The fact that the undertaking is big does not affect its fundamental simplicity. The basic list for a British union catalogue would consist of a consolidation of the *World List*, the *Union Catalogue*, the British Museum heading for Periodical Publications and its former heading for Academies (in part). This would not

be mere scissors and paste work, for of course the entries would have to be reduced to a uniform system⁴; but it could be started, and I think it should be started, at once. I very much wish that one of our enlightened philanthropic corporations would provide the small sum necessary for this preliminary work. We should then be in readiness after the war to get on with the more difficult parts of the undertaking.

How big would such a union catalogue be? The answer to this question involves a good deal of guess-work, but of course an answer must be attempted. The *World List* sets out about 36,000 titles; only 25,000 of these were actually located in one or more of the 187 co-operating libraries; but it is probable that nearly all exist somewhere in a British library. (This fact in itself is a sufficient justification of a wider union catalogue). What is the relation of this total to that of the comparable periodicals of all dates and in all British libraries? The *Union Catalogue* gives us a clue to the temporal part of this equation, but not to the spatial, for it includes the discontinued scientific periodicals, but only those in university libraries. Of course, the *Union Catalogue* includes much more; indeed, the whole of its 23,000 periodicals are additional to those in the *World List*.⁵ We thus get a total of nearly 60,000, which represents most of the current scientific periodicals (not all located), and the whole (with considerable exceptions) of the recorded periodicals in the university libraries. To these we have to add the whole of the humanistic and the discontinued scientific periodicals of the British Museum and of all the national, public and specialised libraries other than those of the universities.

Thanks to the kindness of Mr. E. C. Beharrell, who went to the trouble of making an exact count, I am able to give precise figures for the British Museum. In this library are preserved 45,824 general periodicals and 22,830 classified as journals published by learned societies, a total of 68,654. This figure does not include newspapers and periodicals classified as state papers (government publications). I have made a sample-count of the *World List* and estimate that it sets out about 9,000 of these titles; perhaps 10,000 more (a mere guess) are represented from other sources in the *Union List*; and we are thus left with a balance of about 50,000 British Museum periodicals unrepresented in union catalogues.⁶ This, added to the 60,000 already arrived at, gives us a total of 110,000 periodicals for the first consolidated list described above. How many more will be added by the remaining co-operating libraries it is difficult to judge, but possibly a figure of 25,000 may not be too wildly off the mark. In that case the resulting total of 135,000 would make the British union list about one-third as numerous again as the North American, including its supplements; but as so large a proportion of the total can be achieved at the first stage, I think there is no reason to be frightened by the size of the undertaking.⁷

What is a periodical? This question is as difficult as it is important. I propose to deal with it broadly, without seeking for pedantic exceptions and objections. O.E.D. defines a periodical as "a magazine or miscellany, the successive numbers of which are published at regular intervals (as weekly, monthly, etc.). Not applied to a book published in parts, nor usually to a daily, weekly, or monthly newspaper." This is not quite up to O.E.D. standards, for too many terms of this definition themselves require explanation. A "magazine," we are told, is "a periodical publication containing articles by various writers"; while a newspaper is not unreasonably defined as "a publication containing the news," and "news" as "the report or account of recent events or occurrences." Not much of this will hold water. There are periodicals written by one man and there are periodicals containing news; periodical reports on recent discoveries in given fields often combine both features. Then there are periodicals specifically described as appearing at irregular intervals. And so on.

Neither the *World List* nor the *Union Catalogue* attempts to define what it understands by a periodical. The *Union List* defines a serial as "a publication not issued by a government agency, appearing at regular or stated periods of

less than a year, and including articles on various subjects"; but "law reports, state and local trade union publications" and "many titles which seem to have limited, or ephemeral value" were excluded. I must confess that scarcely any part of this definition appears to me capable of withstanding critical examination; it is the only serious defect in an otherwise remarkable book. One of the most unfortunate results is the exclusion of the valuable annual collections of learned societies.

I do not see any escape from the conclusion that a periodical can be adequately defined only as "a publication, other than a single work issued in parts, successive numbers of which are published at intervals." I think that there is room within this definition for every type of periodical.

Now the further question arises, which of these types should be included in the proposed union catalogue? Perhaps no two people will agree completely on the answer to this question. One thing is least likely to be disputed: the propriety of excluding newspapers, which fall into a clearly defined and almost totally unrelated category. I want to make it clear, however, that I am using the term "newspaper" in the narrowest sense; by this I mean a journal devoted to current affairs generally and produced not less frequently than once a week, or, in certain exceptional cases such as remote localities or prison-camps, once a month.

This exclusion of newspapers appears to be the only one justifiable by definition. Convenience, however, may dictate further exclusions. The *Union Catalogue*, for instance, excludes (I believe) such things as parish magazines,⁸ and the *Union List*, as we have seen, local trade union publications; it seems rather hard that the local and ecclesiastical historian on the one hand, and the sociologist and his colleagues on the other, should be made the victims of this "unfair discrimination." After all, when we are dealing with a total running into six figures, a few thousand more titles do not raise a serious issue. The "pulp" fiction magazines I view with a more jaundiced eye, as I do the many obviously "cranky" magazines dealing with the flatness of the earth, its incipient demise, its peopling by the lost tribes of Israel, and the like. But then somebody will point out, with perfect justice, that to-day, as in the past, the early work of great writers may appear in queer places, and that the nonsense of one day sometimes becomes the wisdom of another—and the other way about. All such difficulties must be settled *ad hoc*, but my personal predilection is decidedly for all-inclusiveness.

There is one further point I should like to make in this connection: I think there is no justification for the exclusion of periodicals published by government agencies. The scope of such agencies is continuously increasing, the frontier between them and private bodies is wide and ill-defined, and in any case to exclude them is to lose a considerable number of essential periodicals for no adequate reason.

One last word: the value of union catalogues of periodicals would be immensely increased by the addition of subject indexes. This is admittedly a counsel of perfection, for the compilation of such indexes presents formidable difficulties. Nevertheless, a subject index must be borne in mind as an eventual supplement to the work now proposed.

(For Addendum and Discussion see page 63)

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¹Some passages in this paper are based on my article "Desiderata bibliographica," *Library Review* (Glasgow, 1942), No. 62, pp. 191-193.

²At least, in the second edition; according to Mr. W. A. Smith's note in the first edition, "the scope of the term scientific is that allowed in the International Catalogue of Scientific Literature." It seems a pity that this definition, meagre though it is, together with the explanatory remarks of which it forms part, was omitted from the new edition. It will be remembered that the exclusion of (*inter alia*) economics aroused a great deal of indignation at an ASLIB conference.

³In the case of the *Union List* there were two preliminary printings; this will not be necessary here.

⁴ As a body of general rules for this purpose the "Notes" at the beginning of the *Union Catalogue* are scarcely to be improved on.

⁵ One of the most surprising and gratifying facts revealed by union catalogues is the extent to which the holdings even of the great libraries vary. Compare, for instance, the figure just given with the total of 61,000 (afterwards increased to 80,000) sets of periodicals held by British University Libraries; see Luxmoore Newcombe, in *The Uses of Libraries*² (1930), p. 93.

⁶ These British Museum figures refer only to Bloomsbury and ignore air-raid destruction.

⁷ The total of all relevant periodicals recorded at the National Central Library but excluded from the *Union Catalogue* runs to "many thousand." (National Central Library, 23rd Annual Report, 1938-39, p. 48).

⁸ The new edition of the *Union List* is to contain 150,000 titles.

Microfilms in Libraries.

By E. LANCASTER-JONES.

The use of microfilms in libraries has rapidly gathered momentum in the past decade in a variety of directions. The relative cheapness and fidelity of reproduction of microfilms, coupled with their compactness and adaptability to the most rapid means of transport, render them suited to many purposes for which libraries have long felt the need to provide a means.

Possibly their primary function in libraries will remain that of providing for scholars a means of examining in their local library facsimiles of the world's treasures of learning, of which the originals are scattered throughout the great national repositories. But rapidly assuming prominence are the utilisation of microfilms to serve the following objectives:

- (1) To provide copies of library records, indexes, catalogues, etc., to serve needs other than those for which the unique originals were made, e.g. to assist in the compilation of union indexes, catalogues and so on.
- (2) To provide duplicate copies of essential records for safe custody.
- (3) As a substitute for lending original volumes, especially where the student only needs to consult relatively small, select sections of the originals. The latter can remain in the library for reference and the "borrower" obtains his own copy of the desired sections. This procedure applies specially to the very frequent need of research workers to consult specific articles in periodicals.
- (4) As a means of publication of certain monographs, reports, theses and the like for which the probable demand is too small to justify normal methods of publication.

Whilst appreciating the varied functions that microfilms can perform, many libraries are still very chary of acquiring these modern substitutes for the material with which they are accustomed to deal. A study of the published criticisms of microfilms as library material, and of conversation among librarians, convinces the writer that much of the criticism arises from lack of knowledge of the procedure of microphotography, that a great deal is due to the misguided assumption on the part of producers of microfilms that it is sufficient to make a faithful photographic copy of the original, and that finally there is great need for widespread practical exposition of all phases of microfilm technique among librarians, especially in this country (Great Britain).

In regard to the first point, librarians should realise that the production of a first class microfilm copy of a normal library book or volume demands high class photographic apparatus and technique. The individual scholar may be content to adapt makeshift apparatus and rudimentary technique to the task of obtaining a personal copy of some manuscript or rare book that he has travelled miles to consult. This copy may subsequently enable him to check up his notes, verify certain details, and arrange subsequently for more extensive copies to be made of particular sections. But the library needs to acquire a product that has the same high standard of excellence as the original, and this standard can only be obtained by employing the best type of apparatus and personnel.

By the same token, the librarian must not expect to have all his microfilms of a uniform size and format. A camera adapted to copy a run of index cards is not usually equally well equipped to cope with a file of newspapers. The outcome in each case may be a roll of film having a stereotyped appearance, but inwardly the two films will be very different, just as the originals are very different outwardly. To make these copies legible to the eye of the reader, two quite dissimilar pieces of enlarging apparatus may be necessary. The librarian must accept this as a necessary condition. Whereas for the originals he has to provide very different storage furniture, so for the microfilms he must provide the appropriate enlargers—whilst, on the other hand, his problem of storage becomes more unified.

Turning to the second point, the need to adapt the microfilm to the purposes of the library, it is evident that a great deal remains to be done in this direction, apart from the essentials of high photographic fidelity, avoidance of errors in skipping or duplicating pages, over-running the margins, etc.

What is primarily needed is a realisation that a normal printed publication has certain characteristics that are very dominant, and that the microfilm cannot reproduce these by mere photography. The book is a succession of pages and can be opened at any section at will; it frequently contains folded plates that can be opened out for study in conjunction with the text; it usually has an index from which a series of references can be derived and attention rapidly transferred to the corresponding sections of the text; it may contain certain diagrams or tables set out transversely to the normal run of the text; and, finally, the text of a particular article or section may be interrupted and carried forward many pages.

The make-up of a printed book permits the reader to overcome the obstructions to continuous study presented by such derangements as are mentioned above; but if the pages of the book are copies in succession upon a roll of film, the copy is very ill adapted to the necessary procedures of skipping intervening pages and consulting correlated pages.

To overcome this disability, certain provisions appear to be desirable. Firstly the film-copy must be adapted to a rapid translation through the reading-machine, with quick identification of the sections or pages attained by any one "shift." This necessitates not merely a "release" mechanism in the reading-machine, permitting the film to run through easily for a desired stretch; but also a system of annotation of the film sections that can be noted very rapidly, either throughout the "run" or at intervals. It is to be noted in this connection that there is a tendency in filming books to cut the margins rather fine, thereby obscuring the page-numbers normally used for rapid identification. In any case these page numbers are not conveniently placed for rapid scanning in a microfilm, and are often rather illegible, being in the region of worst definition.

A device sometimes used is to separate the dominant sections of the film-copy by gaps of "idle" frames, upon which may be indicated suitable annotation, symbols, very plainly visible. These can be made up in advance of the photography to suit the actual book, or can be a series of stereotyped markers that are correlated to the particular book by means of an auxiliary "chart" or "key."

The modern camera for microfilm work has a counting mechanism to enumerate the frames as photographed. If, for example, every tenth frame could be left blank and the corresponding number made to appear in large figures on the film, these markers could serve as a useful series of guides to the particular book for rapid scanning.

Many other systems suggest themselves. The main principle involved is to sacrifice a portion of the film to a system of markers, just as in cinematography a small section of the film is taken up by the sound track.

Another desirable precaution is to separate from the text—or repeat in addition to the complete text—those supplementary details such as indexes,

plates, etc., which it may be desirable to view simultaneously with the body of the text. The supplementary strips containing these adjuncts can then be cut off and fitted into a supplementary projector, or enlarged for unaided eye vision, or partially enlarged for use with a "viewer," i.e. some species of simple magnifying lens.

In this connection, the problem of adapting the microfilm to the various examinations normally made by sections of the library staff should be considered. Included in these examinations are the ones leading up to registration, collation, book-plating, cataloguing and classification, shelf-marking, and post-use checking. Whilst the supplementary strip referred to above may serve a valuable purpose in these processes, and obviate the need to run through the main film repeatedly, there are certain elements characteristic of the actual film-copy that must be included in the details of description embodied in the library records. These should include the nature of the film (generally non-inflammable), type or dimension—e.g. 35 mm., perforated, semi-perforated, unperforated, footage, format, double-page single frame, etc.—"producer," i.e. the agency making the film-copy, date of production, and so on. These details again might be given on a separate strip preceding the actual film, as well as on an enlargement or typed copy for reference.

I feel personally that the problem of safeguarding the film from abuse and checking up on damage or loss sustained in its custody or use may present serious difficulties in a library. Most readers are used to handling books with reasonable care, but films present unfamiliar problems to the majority. It is hardly conceivable that a library can face the expense of providing a skilled manipulator to attend the reader during his study of a film, though doubtless it will be necessary to make sure that he knows how to use the apparatus, fit in the film, withdraw it, and substitute another, etc.

Turning next to the consumer aspect, I feel that a good deal of education is necessary before librarians can be brought to the desired pitch of regarding microfilms not merely as not-unwelcome substitutes for normal publications, but as a new and powerful means of conserving and re-habilitating the records of knowledge, and one that is bound to effect something of a revolution in library technique.

As subjects of research impinge more and more upon one another, continually producing new classifications and specialisations that seek vainly to respond to the interactions of lines of thought and action, there arise new publications attempting to cater for these rapidly fluctuating canalisations of research. One sees the effects also in a continual series of changes of title of existing periodicals.

Yet the new "subjects" have their roots deeply embedded in the older ones, and the older journals still race with their younger competitors in the endeavour to record faithfully the march of progress.

The library must endeavour to control this surge of publications by lending its aid to services of bibliography, abstracting, digesting and summarising. But all these services can only guide the way to the original records. If, however, the indexes, abstracts, summaries, etc., can be tied to the originals by means of microfilms, there arises a rehabilitation of knowledge, a constantly codifying procedure that resolves the chaos of existing publications whilst preserving them in their integrity.

Older attempts to solve this problem were based on the system of separates and reprints. They failed largely because it is impossible to visualise at the time of publication all the ramifications of a particular research or record of action. The microfilm offers a means of *ad hoc* duplication at any time desired. From the dossier of any subject, such sections as are required for embodying in any summary such as a monograph or book can be re-united in the form of microfilms, microprints or enlarged prints as desired.

The same principle naturally applies to any digests or indexes of the original

complete records; in particular to bibliographical indexes and catalogue entries. Libraries are frequently asked to provide lists of works in their possession related to a specific author, subject, etc. Where card-indexes exist from which the necessary items can be extracted, it is much simpler and more economical to run off a microfilm copy of the set than it is to type a corresponding list.

(For Discussion see page 64)

Agriculture and the War Stimulus.

By C. S. ORWIN.

Those who listened one Sunday evening last month to a postscript by the Minister of Agriculture may have been rather surprised at the picture which he painted of our pre-war countryside, before his intervention to promote increased food supplies. The land, he said, was derelict and farm buildings ruinous. He told of the thousands of miles of over-grown hedges which he had caused to be cut, and of the drains and ditches which he had dug. And even though we may be justified in discounting the statements of an energetic Minister proclaiming his own achievement (with which, with characteristic modesty, he associated the Almighty), there is no doubt that neglect of the land was endemic in the country. The landowners on many estates were failing in their duty to maintain the equipment of the land for farming, the deficiencies of much of the rural housing was notorious, public services in country districts were conspicuous, mostly, by their absence. Farmers, for their part, on many farms, were neglectful of everything which did not bring them an immediate cash return. Thistles, and even thorns, defiled the pastures, hedges grew out into the fields, ditches were blocked and land waterlogged.

Speaking at the Farmers' Club on the day following the Minister's broadcast generalisation, Lord Cornwallis gave precise statistics from the county of Kent which did much to justify them. In the Garden of England, the War Agricultural Committee has been compelled to take over, under compulsory powers, 275 farms, comprising 20,000 acres, and changes of tenancy on other holdings totalling a further 30,000 acres have been arranged voluntarily. When it is remembered that this 50,000 acres is land that was so badly farmed that the occupiers had to be dispossessed, it is quite certain that a far larger area was being only indifferently done by. Nor is there any reason to suppose that conditions in Kent were materially different, before the war, from those in almost any other county of England. The Minister of Agriculture did not offer any explanation for this state of affairs. The Chairman of the Kent County War Agricultural Committee, on the other hand, was quite clear as to the causes. "It should be emphasised," he said, "that the state in which we found a great proportion of these lands that have been taken over was not due to the fault of the occupiers. They had been beaten by the neglect of agriculture over the last twenty years or more."

The suggestion that national neglect of agriculture accounts for 50,000 acres of bad farming in Kent seems hardly satisfying. Kent contains about 637,000 acres of cultivated land, and the occupiers of all but some 8 per cent of them have contrived to carry on, apparently at a standard of production which satisfies the War Agricultural Committee notwithstanding this national neglect—"neglect," be it noted, which took the form of paying about three-quarters of a million pounds a week to farmers, in the form of subsidies or financial assistance of one kind or another, during each of the eight years preceding the war. Admittedly farmers had had a bad time during the economic crisis, but with the State help given to them the majority were contriving to carry on at a reasonable standard and some, the more competent, were doing better than this. While it is true that intensity of production is largely a question of prices and the country can have pretty much what it is prepared to pay the farmer to

produce, it is true, also, that farming can adapt itself to almost any conditions that are likely to arise, and the bad farming of which the Minister of Agriculture and the Chairman of the Kent War Agricultural Committee complain is due to the ignorance and incompetence of a certain proportion of the farming community rather than to national neglect of the industry.

It is here, perhaps, that my subject brings itself within the scope of this Conference and relates itself to the work of members of ASLIB. What is the cause of the immense gap between the performance of the best and the worst farmers and what can be done to bridge it?

I think the cause is quite independent of national policy and is to be found deep down in the fundamental organisation of farming, which has never really got away from its original peasant basis, that is to say from the small unit of land organised for self-supply on the basis of family capital and family labour. Almost one half of the farming lands of England are still occupied in units not exceeding 150 acres, and more than 15 per cent in units not exceeding fifty acres. But these little farmers have long lost the idea of self-supply, and they are money-farmers just as much as their neighbours occupying the larger farms which make up the other half of our agricultural land.

Now, let us think what this means. Surely it means that in an age when science in every form has made and is still making immense contributions to our knowledge of the maintenance and the improvement of soil fertility and crop husbandry, and of the breeding and feeding of livestock; when mechanical invention has increased immeasurably the efficiency and the output of manual labour—farming over the greatest part of the country is still carried on by men to whom the natural and physical sciences are closed books; by men on whose little farms there is no scope for modern labour-saving machinery. It is fashionable to-day, to talk about the "national neglect" of agriculture, but this so-called neglect has been, in fact, the deliberate policy for the land, which did not recognise that the farming industry had any claim to special consideration before other industries. Most of the failures which have resulted from this policy are due to the persistence of an organisation for food-production on a scale so small that it is in the hands, perforce, of men almost entirely uneducated in the science of their art and almost entirely unequipped with the best means to practise it.

While statistics show that the natural evolution of farming is tending towards the enlargement of holdings, the process is very slow. So far from assisting it, the State has done what it can to hinder it. For reasons partly political, partly sentimental and wholly uneconomic, it has legislated, at various times, to facilitate the break-up of large farms to make more of these archaic little holdings. It is obvious, however, that any attempt at the engrossment of farms on any considerable scale so as to make openings for the educated farm manager and to justify the investment of capital in mechanical equipment, would have been difficult if not impossible so long as the land remained divided amongst a multiplicity of private individuals in a manner which bears no relation whatever to its use and equipment for modern farming. Thus, until the break with a hundred years of free trade in food products which followed the economic crisis of some twelve years ago, State aid to farming took the form of the provision of advisory services for farmers, and the endowment of agricultural education and research, and stopped there.

These services were organised in every county to give assistance to farmers on all matters pertaining to their work, by lectures, demonstrations and personal consultations. Counties were authorised to raise a penny rate for the purpose, and contributions were added from the national exchequer. The counties were grouped in provinces, each of which had a university at its centre, and here there was established a group of scientific workers, each one a specialist, to investigate local problems of soil fertility, the control of animal and plant diseases, economic organisation, and so forth. It was the intention that they

should be consulted by the county advisory staffs in any matters of difficulty. After the last war, both the county and the provincial services were developed and agriculture had the advantage of a great technical advisory organisation, maintained jointly by the central and local Government, such as no other industry in this country has ever enjoyed.

With the outbreak of another war, an emergency organisation to develop home food production was set up, under County War Agricultural Committees, and following the inspection of farms for the issue of cultivation orders, the backwardness of farm practise on many holdings was disclosed. The poor equipment of the farms, owing to the financial weakness of landowners, and the low condition of the land owing to the incapacity of their tenants, became general knowledge for the first time and led the Minister of Agriculture to the depressing description of the countryside which he gave in his recent broadcast postscript. Disregarding, for my present purpose, the extent of the assistance given to farmers by high prices for their produce, by loans of money and farm equipment and the provision of services to carry out work on the land, a great effort has been made to stimulate production by advice and direction given to the weaker members of the farming community. As the example of Kent shows, a number of men whose cases were regarded as hopeless have been dispossessed of their farms, but these are only a fraction of the number of those regarded as inefficient who have been put more or less under tutelage. Inefficient and ignorant men are being given Direction Orders by the War Agricultural Committees, and neighbours, better qualified, are being appointed to see that these Orders are carried out. Large numbers of Technical Officers are attached to the County Committees, whose duty it is to discover backward farming and to advise upon its remedy, while the Ministry of Agriculture itself has issued and is issuing a large quantity of advisory literature bearing upon the problems of farming, old and new.

More recently, every County War Agricultural Committee has set up, under instructions, a Development Sub-Committee, the main purpose of which is to organise demonstrations of all kinds which may make for better farming. Inspections of holdings which are typical of good farming practice are arranged, at which the outstanding features of good husbandry are enlarged upon by the County Agricultural Organiser, or some other person equally qualified in local farm practice. Demonstrations of new processes are arranged in the various districts of the county, such as how to make silage, how to make wheat straw into digestible cattle food, how to establish temporary pastures—and even more everyday matters, such as rick-thatching, hedge-laying and potato-clamping.

Those who have been closely in touch with this work have to admit that the interest in it is disappointing. Before the war, there is little doubt that amongst the younger men the interest in the study of technical improvements in farming was growing, as a result of the Advisory Services. But the older and the less educated and efficient amongst farmers were unmoved by it, nor have they responded to the special war-time stimulus. The demonstrations, for the most part, are poorly attended, and not by the people who need them most. The rank and file of farmers are not readers, outside their trade papers and the County newspaper. The cult of the "practical man"—the man whom Disraeli defined as practising all the errors of his fore-fathers—has gone to great lengths in farming, leading to a good-natured contempt for scientific knowledge and, indeed, for education generally. To-day, when everything is needed that the land can produce, there is a tendency amongst people who ought to know better to foster this feeling, and to flatter the weakness that it represents in the mistaken belief that only by this appeal to his vanity can we be sure of keeping the farmer up to the collar.

As the result of the war-time stimulus, the Minister of Agriculture has told us that he has raised our self-sufficiency in food supply from about 45 per cent

to almost 66 per cent. It must be remembered that the lower figure is related to the pre-war dietary standard of the nation, and the higher one to Lord Woolton's standard; further, that this result has been achieved by a prodigal expenditure of money and effort which only the present emergency could justify. Can we expect the country to continue its provision of all these palliatives to ignorance and inefficiency when this emergency is past? At present, we seem to be asking the impossible of farmers and farming. We have an industry in which the results of scientific research and mechanical invention cannot be applied to anything approaching their maximum owing to the time-lag in adapting and equipping the farming units so that they will attract the type of farmer who can take advantage of them. What use is it to educate and to train young men in the science and the practice of agriculture if there are no careers in it for them?

The war-time stimulus to farming, then, may be expected to pass and the industry to revert to the unsatisfactory condition which the Minister has described unless the State should think it worth while to embark upon a scheme of drastic reconstruction, beyond the means of the present owners of the land. The little farms which form the bulk of the agricultural holdings of the country offer no scope to the educated, intelligent and ambitious man, able and anxious to develop the resources of the land to their fullest capacity.

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War-time Problems in Books and Binding.

By B. M. HEADICAR, F.L.A.

We are all aware by now that there is a paper scarcity and that the production of books and periodicals has been tremendously curtailed thereby. The limitation of the supply of cloth, strawboard and other materials used for binding and the drastic cut in the supply of labour have added further difficulties for the publishing world. It has been stated that only about one per cent of the supply of paper available has been allocated for books.

Limitation has been placed on the importation of books and the publisher has a difficult problem to answer on this point—which books shall he import, a few copies of many different works or a large stock of two or three only. He has to decide whether he shall reprint a work in demand or allocate his paper to a new work altogether. Some people complain that thousands of tons of paper are now used for drivel and even pornographic stuff and ask cannot the Paper Control take some action to prevent this misuse of valuable paper, suggesting at the same time the reduction of the supply of paper to firms who are publishing rubbish. Who is to decide what is rubbish and what it is expedient to issue? Publishers know what is valuable, but how far are they prepared to sacrifice low class publications which *sell* for those likely to benefit the community? I want to make it clear right away, that we owe a debt of gratitude to the publishers, who, under great difficulties, have kept us supplied with literature during these strenuous times, and any criticism here is an attempt to make matters a little easier for them and for us.

The Book Economy Agreement which came into force on 1st January, 1942, is a step in the right direction, embracing as it does not only economy in the use of materials, but also a self-censorship arrangement among leading publishers, who have agreed to restrict their production of new books to absolute essentials. All publishers are invited to sign this agreement, but there must be many firms still outside the arrangement, judging from many works issued this year. Is there any real need for the prolific use of dust jackets in these hard times, especially those round cheap editions? They serve a purpose in normal

times I agree, but most libraries at any rate remove the jackets before the books go on to the shelves, sometimes reserving a few for display purposes.

Again, is there any real need for publishers' catalogues and lists of announcements to contain whole page descriptions of forthcoming works, particularly works of fiction? The briefest summary of contents would suffice in war time and thousands of pages of paper should be saved with every list issued. Another question being discussed is whether it is advisable to issue at the moment certain government publications which, although important, are not urgently required. For instance, are the publications of the Historical Manuscripts Commission so badly needed that it is necessary for them to be issued during a severe paper shortage? There is no doubt they are very valuable to historians and bibliographers, but they can afford to wait. Many things can yet be done to ensure that the minimum use of paper and materials is generally operative and it would, I think, help matters considerably if all books to be published were submitted to a "materials censor," whose duty should be to decide, not whether a work is suitable for publication, but whether its make-up is such as to ensure that the minimum amounts of type, spacing, etc., have been used. New chapters should run on, illustrations should be printed on both sides of a leaf, half-titles dedications, etc., omitted, or used only when a page would otherwise be left blank.

The desirability of issuing books in paper wrappers as a means of conserving strawboard and cloth has frequently been expressed, but the problem is not so simple as it might appear. It is doubtful whether sufficient machinery is in existence to deal with all books published, in this way, and a large quantity of paper would be used in the process. On the other hand, strawboard, which is now extremely short, would be saved, cloth covers as well, while labour would be much reduced, costs reduced and a large sum saved on transport charges. The general use of wrappers would, however, add to an already existent problem for libraries. At the moment bookbinders throughout the country are declining to take any further orders, and most libraries have quantities of binding arrears. Against this there would be made available a very large quantity of strawboard, etc., for *re-binding* when labour was obtainable. The whole matter makes rather a vicious circle. Is it not possible to ease the situation for publishers and libraries by arranging that a limited number of copies should be issued in bound format, especially novels, for libraries, and the greater part of an edition in paper wrappers for the general public?

The most pronounced reminder of the paper shortage is in the newspaper and periodical world. Newspapers have been reduced to a tiny fraction of what they were in size, and with many fewer pages, smaller but clear type, and infinitely smaller headlines; the daily feuilleton has disappeared, sports news reduced to an absolute minimum, advertisements (the paper's life-blood) attenuated and given a tiny part of the paper area. Weekly, monthly and quarterly periodicals are down to a few pages, many of them cut down to half the size of pre-war issues, some weeklies have become fortnightlies or monthlies. I am not at all certain that we are any the worse off as a result. Rationalisation of the newspaper press has frequently been suggested and some people have argued that one daily paper should suffice for the whole community. This would not reduce the number of newspapers sold, but a limitation of the paper to four pages would make a big saving on the total number of pages allotted to *all* the dailies now read. Possibly the problem would be simpler in provincial towns. Nottingham, for instance, has four daily papers—two morning and two evening—and three weeklies. If one morning and one evening paper were discontinued the number of copies of the papers sold would probably be equal to the number sold when four papers were circulating, but much labour would be saved. There would naturally be an immediate howl from the politicians in the locality at being compelled either to go without a paper or to take one with whose views they were thoroughly in disagreement. This feeling could be

mollified by issuing the two morning and evening papers on alternate days. The same idea could be applied to the weeklies if necessary.

In all papers at the moment a large amount of space is taken up by advertisements of articles no longer obtainable, simply to keep the things in people's minds for after-war purchase. In my opinion this should not be allowed. Many other display advertisements could be omitted or much reduced in size. They are all antagonistic to the Government's policy of "But only what is essential," and it does not want a picture advertisement for that. None of these suggestions is calculated by itself to make an enormous difference, but the application of all or some would mean the saving of thousands of tons of precious paper, without causing any real hardship to anybody.

The binding of periodicals may prove an added difficulty by the fact that quite a number have been reduced in size, and there may be two or more sizes to go into a single volume. It will generally be found that most of the reductions in size took place at the commencement of a new volume, but when that is not the case there is no real difficulty in including differing sizes in the same covers. Until a few years ago many Government publications were issued in octavo size, but the title page and contents for the bound volumes were invariably foolscap size. For many successive years the annual fat octavo report of the Local Government Board constituted a volume by itself, but it had to go into a thirteen inch cover because the title page and list of contents were of that size.

Librarians can help themselves and the binder in several ways. Home repairs can be considerably extended. It is surprising what can be done with paste, glue and adhesive tape. If the boards are removed from books to be withdrawn or salvaged the binder can be provided with almost sufficient materials for all the re-binding required. In many cases also the covers of rebound volumes withdrawn from circulation when superseded are quite good enough to be used again for a work of the same size by simply having new lettering pieces. Be satisfied with quarter cloth bindings. One extremely useful idea which I have practised for many years (and generally kept pretty quiet about) is to hunt for and acquire from secondhand bookshops and junk shops odd volumes in leather or vellum bindings, in good condition, and then fitting the binding to any suitable work from the library stock. I hope everybody will not start hunting and spoil my market. In any case do not put a seventeenth-century book in a twentieth century binding, or vice versa.

The binding of periodical parts of varying sizes into one cover is quite satisfactorily done if the smaller numbers are centred within the covers, or if alternate parts are overlapped to the size of the largest.

Let me roughly demonstrate two ways in which the binding problem may be eased by home repairs. Paper covered works can be made suitable for use by fitting them into strawboard removed from withdrawn or worn-out books. Take two pieces the exact size of the publication, place the latter between them, and then, with a bradawl or sharp nail, pierce three holes through the work, at a uniform distance from, and not too close to, the type. Sew them with thread through these holes, fastening in the centre. Take off the paper covers and mount each, back and front, on to the strawboard. The volume will then stand upright on the shelf and will wear a long time.

Very many volumes withdrawn for binding are suffering from broken spines. To make these useable again, take a piece of the cloth from a withdrawn or worn out work, the same length (and colour if possible) as the work to be repaired, and wide enough to allow an inch fold on each side of the spine. Carefully remove and trim the spine of the work under repair; glue the inch folds of the piece of cloth, and fix it neatly over the spine; then remove any backing paper from the spine of the "repair" and glue the latter on to the cloth previously fixed. This will give you an "open back" and, if properly done, the volume will be quite presentable again, with many months of wear assured.

(For Discussion see page 67)

Some Methods Used in the Special Library of a Research Department.

By J. E. WRIGHT.

INTRODUCTION.

PART 1.—Informal lectures on library matters.

Special libraries.

Catalogues.

Text books.

Periodicals.

Abstracts.

Reports.

Reference books.

Information Bureaux.

PART 2.—Demonstration of some methods which may be novel.

Labelling text-books, etc.

Preparing volumes for binding.

Loan records.

Catalogue of text-books.

INTRODUCTION.

There are, especially at the present time, many entering the very specialised libraries of government, industrial, or commercial undertakings who have had little or no experience of, or tuition for, library work. The help these people can obtain from studying the methods used by other libraries, particularly the larger special libraries such as the Patent Office and the Science Library, is limited by the difference of conditions which exists. Consequently, unless they are prepared to undertake one of the organised courses in librarianship, they must to a great extent feel their way as best they can. There are many reasons perhaps why this situation should not exist, but, granting that it does exist, what can ASLIB do to help these persons, because surely by its very title it should help them.

For many years now I have heard practically every paper read at both ASLIB and British Society for International Bibliography meetings and I suspect that the new members of these societies have not received from the papers presented in recent years the help they hoped for because so many of the papers are very specialised. I think that what is wanted is at least one paper or discussion in each season's programme describing useful methods for the smaller libraries and I should like to see these augmented by some simple explanation and comparison of the different systems of indexing, classifying, cataloguing, etc. Assistants and newcomers to special libraries would look forward to these meetings and engineers, chemists, and users of special libraries generally, would find interest and benefit from attending.

PART I.

INFORMAL LECTURES ON LIBRARY MATTERS.

A few years ago I gave to my associates in the library and patents group of the P.O. Engineering Research Station a series of informal lectures about libraries and library methods. The lectures were not intended to be an abridged course in librarianship, their purpose was to give my colleagues a better understanding of the function of the library and why various methods were used in its running. This brief review of the lectures is intended to serve as an indication of the type of papers I think would interest new members of ASLIB.

SPECIAL LIBRARIES.

An explanation of the different kinds of libraries which exist was built-up

round the family tree shown in Fig. 1, which was illustrated by inserting under the proper sections the names of well-known libraries.

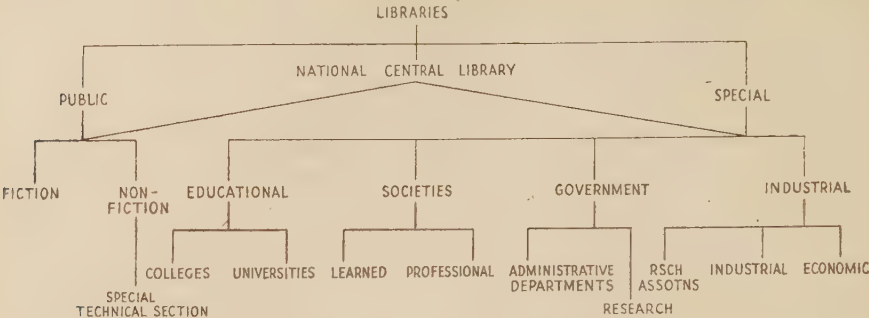


FIG. 1.

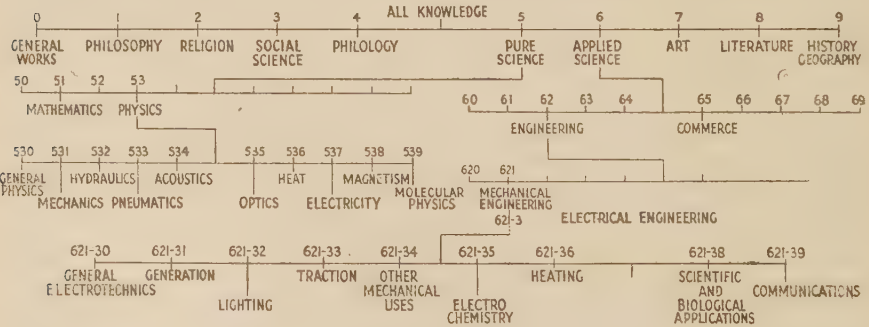
An explanation of the help a library can give to research workers led up to a consideration of the necessary material, or technical literature, which that library must file. The different categories into which it was natural to divide this material were explained and a reasonable shelf arrangement devised.

Material	Shelf arrangement
Books .	By subject
Periodicals .	Alphabetical or subject
Pamphlets .	By subject
Reports .	Numerically by report number

FIG. 2.

CATALOGUE.

The importance of adequate and suitable catalogues becoming apparent a brief review of alphabetical author and subject indexes naturally followed in which some of the well-known pitfalls were explained. The importance of working to a set of rules was emphasised. Since in our library the Universal Decimal Classification is extensively used this was studied at some length and its historical connection with the Dewey system explained. The nature of other



PRINCIPLE OF THE U.D.C.

FIG. 3

well-known systems such as that of the Library of Congress was also mentioned. Having considered the make up of a library the next consideration was the equally important one of knowing how to get material from a library. Since this aspect is not so well covered by text-books I think you may wish me to be more full in explaining how this subject was treated.

TEXT-BOOKS.

The significance of the call-number on the back of a book was considered (Fig. 4) and it was explained that although the number of text-books in our library does not necessitate the full use of this system, the Cutter book number can be added to the U.D.C. number at present used should the need arise. This was an illustration of the advantage of planning for future growth.

	Decimal System	L. of C. System	Shelf No. only
Class Numbers .	537	QU 501	—
Book „ .	F 219	F 219	—
Call „ .	537 F 219	QU 501 F 219	SX 521

FIG. 4.

In special libraries periodicals, pamphlets and reports are widely used and of the utmost importance because they contain the most recent information on scientific experience and development.

PERIODICALS.

The last edition of the *World List of Scientific Periodicals*, published in 1933, listed 36,000, but the number has greatly increased since then. The *Hand list of Periodicals in the Science Library* refers to over 9,000 titles of current periodicals. Our own library only subscribes to about 150 periodicals but from time to time requests are received for journals which have to be borrowed from other libraries, and it is as well, therefore, to be prepared for the pitfalls which can arise if proper care is not exercised when quoting references. Some periodicals have identical titles and still more have very similar titles. It must not be wondered at therefore if indexes of periodical titles appear at a first glance to be unnecessarily involved. It is absolutely necessary to ascertain the correct and full title of a periodical which is required and if possible the town of origin. Cryptic abbreviations should at all times be avoided. They lead to endless confusion and delay. Such abbreviations as E.E. may stand for any number of periodicals besides *Electrical Engineering*, *Electrical Engineer* or *Electronic Engineering*; and B.S.T.J., although familiar to many telephone engineers, is hardly likely to mean much to other engineers or to librarians. A good rule is “never abbreviate a title beyond a point where the original words can be identified.” It is a common practice for librarians to list periodicals sponsored by a society under the name of the society. Another practice is that of listing them under the town where they are published. Many give cross-reference in their indexes so that the correct title or the name of the Society may be found in such cases as—*Electrical Engineering*—see *American Institute of Electrical Engineers* and *Philosophical Magazine*, see *London, Edinburgh and Dublin Philosophical Magazine and Journal of Science*. When a periodical has changed its title, an occurrence, by no means unusual, the information regarding the whole series is usually given under the last title, but it may be under the first, or shown separately for each title as shown in Fig. 5.

- (1) *Transactions (Monthly) of the American Institute of Electrical Engineers*
continued as
Proceedings of the American Institute of Electrical Engineers
continued as
Journal of the American Institute of Electrical Engineers
continued as
Electrical Engineering.
- (2) *Transactions (Quarterly) of the American Institute of Electrical Engineers*
continued as
Electrical Engineering

FIG. 5.

A periodical in the strict sense of the word is any publication which is published continuously at intervals, weekly, monthly, quarterly, or annually. Consequently there are a number of publications which may be thought of as books but which are properly classified as periodicals. Publications such as :

Reports of Progress in Physics.

Tables annuelles Internationales de Constantes et Données Numériques.

The Army List.

Whitakers Almanack.

and the numerous year-books come in this category although they may be filed as reference works if the library has a special reference section.

Users of libraries may be divided into two classes :

- (1) Those who want a specific book or article, and
- (2) those who want information on some subject or other.

Those in the second class will generally graduate to the first class by obtaining from some bibliographical source, probably abstracts, references to specific articles, but they will frequently ask the library staff to make searches for them.

ABSTRACTS.

There are a considerable number of publications giving abstracts or references to current technical literature of all kinds on all manner of subjects. Some of them are well known, others are not. Unfortunately they are published by a number of independent bodies and so far little has been done to co-ordinate their separate efforts. Consequently, although there is a tremendous amount of overlapping, scientific literature is not completely covered by them. Furthermore, they are as yet all using different systems. Nevertheless these abstracts are of immense value to the scientific worker. Some libraries have built up abstract files of their own which cover very comprehensively the subjects which specially concern them. The Post Office Research Station Library, for instance, has accumulated since 1935 over 18,000 references principally to literature on telecommunications engineering. The table at the end of this article summarises the scope and characteristics of a number of periodically issued abstracts.

When information which is required cannot be obtained from books or periodicals the only course is to extend the search to other fields. These will include reports published by Research Associations, patent specifications, pamphlets and trade literature.

REPORTS—RESEARCH ASSOCIATION LITERATURE.

The Department of Scientific and Industrial Research (D.S. & I.R.), which was formed in 1916 has control of a number of government Research Establishments and since it administers a very substantial annual government grant to the various Trade Research Associations, it has also a considerable interest in their activities. These are described in the annual reports issued by each Research Association and in reports of investigations carried out by the staffs of their experimental stations. References to these publications are given in the Monthly Summaries of the D.S. & I.R. Many of the reports are on sale but others, particularly those of the Trade Research Associations, are confidential to members. The D.S. & I.R. serves as a liaison organisation between these bodies and other government departments. Because of its wide contacts it is a very helpful source of information. The following list of some of the Research Boards of the D.S. & I.R., and some of the Research Associations, gives an indication of the wide field of research covered by these organisations.

DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH.
LIST OF SOME OF THE RESEARCH BOARDS AND RESEARCH ASSOCIATIONS.

Building Research Board.	British Cotton Industry Research Association.
Chemistry Research Board.	Research Association of British Rubber Manufacturers.
Forest Products Research Board.	British Non-Ferrous Metals Research Association.
Fuel Research Board.	British Refractories Research Association.
Metallurgy Research Board.	British Electrical and Allied Industries Research Association.
Radio Research Board.	British Cast Iron Research Association
Water Pollution Research Board.	
British Scientific Instrument Research Association.	
Wool Industries Research Association.	
Research Association of British Paint, Colour and Varnish Manufacturers.	

Much useful information is published in pamphlet, brochure or catalogue form by the trade and some libraries have quite extensive pamphlet files.

REFERENCE BOOKS.

There is still a tendency to think of a reference book in terms of its size. If a book is large it must be a reference book and, conversely, if it is small, unless it is called a pocket book, it is not a reference work. This is, of course, absurd. A better definition is "a book to be consulted but not read through," although there are on the other hand many books which may be read through and also frequently consulted. The library staff, and, of course, users of libraries too, will find it very useful to have a good idea of the scope of the reference books in the library. The following list includes some of the more widely known technical reference works :

Physical and Chemical Constants. G. W. C. Kaye and T. H. Laby.
Handbook of Chemistry and Physics. D. C. Hodgman and N. A. Lange.
Smithsonian Physical Tables. F. E. Fowle.
The Chemists Year Book.
Whitakers Electrical Engineers Pocket Book.
Kempe's Engineer's Year Book.
Concrete Year Book.
Laxton's Builders Price Book.
Heating, Ventilating, Air Conditioning Guide.
Machinery's Handbook.
The Metal Industry Handbook and Directory.
Radio Engineering Handbook. Henney.
Admiralty Handbook of Wireless Telegraphy.
Electrical Engineers Handbook 5. Electrical Communication and Electronics
(Whiley Handbook Series). H. Pender.
Radio Designers Handbook. J. Langford Smith.
Radio Component Manufacturers Federation. Standardisation Report.

The following Directories and Buyers Guides are very useful :

"Engineer" Directory and Buyers Guide.
Machinery Buyers Guide.
Where to Buy Everything Electrical.
British Engineers Association Classified List of Members and their Manufactures.
British Plastics Year Book.

Besides technical information scientific workers require at times information concerning officials in government departments or large firms, or officers of municipal undertakings. They require to know the exact status or position of a correspondent, or to know who to write to when corresponding with a large firm, or the name, etc., of the secretary of an institution or society.

Officials of Government Departments are listed in the *British Imperial Calendar and Civil Service List*.

Officials of the various branches of the Department of Scientific and Industrial Research are given at the end of the *Annual Report of the D.S. & I.R.*

Information regarding Institutions and Societies may be found in *The Official Year Book of Scientific and Learned Societies*.

The Blue Book and *Garcke's Manual* contain detailed information regarding electrical undertakings and officials of undertakings and companies.

Titled persons, Knights Bachelor, and prominent people in public life are shown in *Who's Who*.

Much of the information listed above is also given in *Whitakers Almanack*. In fact it is surprising how often this publication can be relied on for information on all manner of subjects.

INFORMATION BUREAUX.

No one person can hope to see, let alone read, even a tenth of the published matter which may refer to his work, and the best information cannot be chosen from such a vast amount of literature by random sampling. Consequently many organisations have built up information bureaux employing staff who sift this mass of published literature for information relative to certain branches of science and industry. They issue bulletins giving abstracts of selected articles in current periodicals and prepare bibliographies and make searches for the benefit of those engaged on particular problems. Some of these bureaux even go so far as to extract information from the literature and supply definite answers regarding substances, processes, etc.

These information bureaux are not staffed by persons with cyclopaedic minds but by persons who know where to look for information. Many questions which may seem teasers to those who do not know libraries are really simple to answer, as may be seen from the examples quoted below of requests for information which have been received. Someone in each case has either not known where to look for the information or has thought that the search would be difficult or prolonged.

Whilst it is not easy to define a set of rules on how to find information a few general ideas can be put forward which may be helpful. For instance, although the user may have no references to information on the subject in which he is interested, he may have some helpful facts which may shorten his search if used as shown in Fig. 6.

FIG. 6.

	Clue	Procedure
1	Name of the author who writes or who has written on the subject	Refer to author indexes of abstract journals
2	Title of periodical is known but not the volume, year, etc.	Consult the cumulative index of the periodical if there is one
3	Likely date for the required information to have been published (It is worth remembering here that time passes quickly and references one has in mind are often several years older than memory at first suggests)	If some years ago information may be in a text-book covering the subject Bibliographical references in a text-book may be useful If information published less than two years ago it is not likely to be in a book so periodical literature must be relied on. Consult abstracts
4	The type of journal in which information was probably published	This may be a guide to the type of abstract journal to consult
5	Subject matter only known	The classified subject indexes of the appropriate abstract journal or abstract file must be consulted

N.B.—When using alphabetical or analytical indexes all the likely catchwords under which the information might be filed should be considered. The alternative aspects under which an article might be filed in a classified system such as the U.D.C. should also be borne in mind.

The following examples show how these clues have been applied to some requests for information :

(a) *Enquiry* : Reference to an article by Ryall on the valveless-echo-suppressor published about 1931.

Clues : 1. Author's name.
3. Approximate date.
5. Clear definition of the subject.

Method : *Science Abstracts B*, author indexes consulted round about 1931.

Answer : L. E. Ryall. Valveless differential echo-suppressor. *Post Office Electrical Engineers Journal*, 28, pp. 27-36, April, 1935.

Remarks : Clue 3 was a help but not quite accurate. In this example the subject indexes to *Science Abstracts B* would have been almost as easy to use as the author index. The information was indexed under echo-suppressor.

The U.D.C. file could have been used, the subject key number for echo-suppressors being 621.395.648.1.

(b) *Enquiry* : To trace an article by Phillips on electrical services in the P.O. Research Station.

Clues : 1. Author's name.
3. Probably soon after opening of the Station in 1933.
4. Likely journal.

Method : Searched *Science Abstracts B* author indexes round about this period but found no reference. Since the article probably appeared in *Post Office Electrical Engineers Journal*, the ten years cumulative index of this periodical was consulted.

Answer : R. S. Phillips, Electrical and other services at the Post Office Research Station. *Post Office Electrical Engineers Journal* 27, pp. 259-271, 1934.

Remarks : Here the assumption of Clue 4 proved useful.
The subject is not easily tied down to a suitable catchword or U.D.C. reference.

(c) *Enquiry* : Description of the Verdan radio telegraph system referred to in *Journal of the Institution Electrical Engineers*, 84, pp. 638- , 1939.

Clues : 1. A possible author.
3. Presumably 1930-38.
5. Subject.

Method : The *Journal of the Institution Electrical Engineers* reference gave no further information. Verdan might be the name of the inventor. If so, he may have written a description of the system, therefore, *Science Abstracts B*, author indexes were consulted.

Answer : C. Verdan. Adaptation de l'appareil baudot aux communications radiotélégraphiques. *Annal des Postes Télégr. Téléph.*, 22, pp. 675-699, August, 1933. This gives only a brief description of the subject but refers to an earlier article where a full description is given, i.e. *J. Télégraphique*, March, 1929.

Remarks : Here a guess at the author proved useful.
The subject is somewhat difficult to reduce into a narrow field for either a catchword, or a U.D.C. number.

(d) *Enquiry* : Reference to an article on cable laying by means of a moledrainer in *Post Office Electrical Engineers Journal*.

Clues : 2. Title of periodical.
3. Probably since 1935.

- Method* : Searched through index to each volume of *Post Office Electrical Engineers Journal* back to 1937, then used Ten Years Cumulative Index which gave the reference.
- Answer* : Laying cables by means of a moledrainer. *Post Office Electrical Engineers Journal*, 25, p. 147 and 240, 1932-3.
- Remarks* : Here the probable date was a little misleading.
- (e) *Enquiry* : Reference to an article in *Bell System Technical Journal* on Regeneration Theory.
- Clues* : 2. Title of periodical.
3. Probably since 1935.
5. Subject.
- Method* : The cumulative index to this journal only covers the period 1922-3, but all articles in this journal appear as *Bell Monographs* and Volume II and Appendix of the Index of Monographs covers the whole period up to July, 1938. The subject section of this index gave two references.
- Answer* : Regeneration theory and experiment.
Bell System Technical Journal, October, 1934, pp. 680-700.
Proc. Inst. Radio Engrs., October, 1934, pp. 1191-1210.
- (f) *Enquiry* : Wanted a paper published four or five years ago on the trunk exchange at Capetown.
- Clues* : 3. Four or five years ago, i.e. 1935-6.
5. Subject.
- Method* : *Science Abstracts B* subject indexes. The catchword to look under is Telephone Exchanges.
- Answer* : Modern developments in South African telephone exchange design. *Post Office Electrical Engineers Journal*, 28, pp. 12-22, April, 1935.
- Remarks* : The article was quickly found because the date was right. The U.D.C. alphabetical subject key gives exchanges, telephone 621.395.722, but the cards are not further divided geographically so that a rather considerable number of cards would have to be scrutinised.
- (g) *Enquiry* : Wanted information on Magnetrons.
- Clue* : 5. Subject.
- Method* : U.D.C. alphabetical subject key gave magnetron valve 621.385.16.
- Answer* : Thirty-three references.

REFERENCES.

- | | | |
|--|---|------|
| Records and Research in Engineering | J. Edwin Holmstrom | 1940 |
| Library Guide for the Chemist | B. A. Soule | 1938 |
| Libraries for Scientific Research | H. P. Spratt | 1936 |
| Reference Library Methods | J. Warner | 1928 |
| Cataloguing in Special Libraries | J. L. Thornton | 1938 |
| Manual of Classification | W. C. Berwick Sayers | 1926 |
| Introduction to Cataloguing and the Classification of Books | M. Mann | 1930 |
| Decimal Classification and Relative Index | M. Dewey (Thirteenth) | 1932 |
| A World List of Scientific Periodicals | (Second) | 1934 |
| Classification for Works on Pure and Applied Science in the Science Museum Library | | 1936 |
| Handlist of short titles of current Periodicals in the Science Library | | 1938 |
| International code of Abbreviations for titles of Periodicals | | 1930 |
| The Universal Decimal Classification of Information. | J. E. Wright, | |
| | <i>Post Office Electrical Engineers Journal</i> , 32, pp. 56-58, April, 1939. | |
| The Special Library and Information Service of the Post Office Engineering Department. | J. E. Wright, <i>Proc. Brit. Soc. Int. Biblio.</i> , 1, No. 1, 1940, pp. 1-6. | |

(For Discussion see page 67)

PUBLISHED ABSTRACTS RECEIVED IN THE LIBRARY

Publication	Subjects covered	Frequency of Issue	Form of Reference	Kind of index
<i>Science Abstracts</i> <i>Science Abstracts</i> (Radio Research Board Abstracts) <i>Wireless Engineer</i> <i>Proceedings of the Physical Society</i> <i>Boletino del Centro Volpi di Elettologia</i>	A B Physics Electrical Engineering Acoustics, Radio, Television, Valves Physics Physics, Electrical Engineering	Monthly " Two monthly " *	Abstracts " References (Suitable for cards)	Author + Alphabetical Subject, annually " Alphabetically subdivided classes annually Classified U.D.C. index slips Subject classified abstracts U.D.C. and L. of C.
<i>Engineering Abstracts</i> (Institution of Civil Engineers)	Mechanical, mining, marine, engineering Pure and physiological chemists	Two monthly Monthly	" Abstracts of journals and patents Abstracts	Author + Alphabetical subject to each issue Author + Alphabetical Subject annually " " " "
<i>British Chemical Abstracts</i> <i>British Chemical Abstracts</i> (Institution of Metals)	Applied chemistry General and Non-ferrous Materials, construction, industrial or-ganisation	" " "	" " "	Grouped under names of departments, etc. " "
<i>Water Pollution Abstracts</i> (D.S. & I.R.) <i>Monthly Summary of Reports</i> (D.S. & I.R.)	Water supplies, pollution, corrosion Work of Government experimental establishments and Research Assocns.	" "	" "	Name index and patents list. Classified divisions of subjects annually Author + Alphabetical Subject annually
<i>Research Association of British Rubber Manufacturers Abstracts</i> <i>British Non-Ferrous Metals Research Association Bulletin</i>	Non-ferrous metals developments in research and industry Photography Electrical Engineering Nickel in industry	" Weekly Monthly	Abstracts journals and British and Foreign Patents " " "	Classified U.D.C. abstracts Classified U.D.C. abstracts Author + Alphabetical Subject annually
<i>Kodak Abstracts</i> <i>Metropolitan Vickers Bulletin</i> <i>The Nickel Bulletin</i> (Mond Nickel Co.)				

*Discontinued since the war

AUTHOR'S NOTE : " The list of published Abstracts at the end of my Paper have aroused much interest and I have received many helpful suggestions for additions to it. Since however, the Table refers only to Abstracts in the Research Branch Library and would still be incomplete if I added some items to it, I think it is best left unaltered."

The Special Library in Time of War

By E. M. R. DITMAS.

Books rank high in a Democracy and the freedom of the press is one of its most cherished characteristics. In our own time this has been recognised by the exemption of books from the Purchase Tax and by recent Government action which schedules them amongst the essential needs of the community. It follows then that those who handle the book from its cradle to its grave, the author, the printer, publisher, bookseller, librarian, reader and, last but not least in these days of shortage of raw materials, the salvage collector, should have due perception of their responsibilities.

For the moment we are only concerned with the librarian and the special librarian at that. It will be as well, therefore, to start with a clear definition of the special librarian as distinct from the librarian of a public or general library. Perhaps the differences may be best summed up by saying that whereas the public librarian is primarily the guardian of books arranged to meet the needs of all types of enquirers, the special librarian caters for a specified field of interests. In the first case the onus is on the enquirer to know what information he is seeking ; in the second it is usually part of the work of the special librarian to prepare material in advance of demand and to organise the distribution of information to those likely to be concerned.

Naturally war conditions will affect all libraries for good or ill but the impact is particularly sharp where special libraries are concerned. The library whose special field is archaeology, the classics, literature or any other branch of the Humanities, may find its activities greatly reduced but those which in any way touch on pure or applied science or technology will probably be stimulated into redoubled activity. In either case the librarian has great responsibilities. In the first instance he must assure that accumulation of data upon which research depends, no easy matter in these days of severed communications and the suppression of much of international scholarship in the name of bigoted racialism. It is to him that the scholars will turn when days of leisure return again, when knowledge and culture can be pursued for their own sake, and not as a means to the winning of a total war. There will be inevitable gaps on the shelves, volumes missing through enemy action and irreplaceable because of the destruction of stocks, but the extent of these lacunae will be largely dependent upon his present appreciation of the value of his library, and upon his faith in the future of scholarship and art.

The librarian in charge of a scientific library or of one attached to any industrial concern has a different problem. His is the responsibility for keeping up with the swift development of science and technology under the stimulus of war needs and of organising the distribution of new data to the circle of production or research workers in his organisation. Possibly he may be working for a firm which has changed over to munitions or other unfamiliar work and he must meet the many and diverse demands with inadequate staff, imperfect equipment and unfamiliar channels of communication.

The problem of staff always looms large when the effects of war upon any library are considered. It is true that in many special libraries the key men or women have been reserved but this has been chiefly in their capacities as chemists, engineers, physicists, etc., rather than as librarians. But in any large library there must be assistants and it is here that the difficulties are most experienced. Those at the headquarters of the Ministry of Labour and National Service recognise that librarianship is a skilled profession but their decrees have to be interpreted by the local labour exchanges whose officials have too frequently only a hazy idea of the functions of a librarian. One who "loves books and/or looks after them" is the common estimate—the care of books being thought of only in its most elementary and mechanical aspects. That is

why it is so difficult to persuade many officials that the charge of a library is not a job that can be passed over to just anybody. The unfortunate fact that in some Government departments the "Librarian" is a member of the clerical staff and liable to transfer to some other section, strengthens this misapprehension and makes it doubly difficult to bring home the truth that an assistant librarian, of several years' experience and with special qualifications, is not replaceable at short notice by an untrained clerical worker. The effect of the call-up of assistant librarians is becoming more and more noticeable, especially now that the women are also being withdrawn. Moreover, training presents its own problems. Few organisations are willing to encourage adequate training for juniors who will be called up in the near future and who are, therefore, seldom thinking of librarianship as a career while the older women are often doing it as a war occupation and are not interested in training for librarianship as a profession. In the meantime the librarian must struggle on, making the best of such semi-skilled labour as he can obtain, striving to maintain at least a degree of efficiency which will keep the essential functions of his library at work.

Apart from the staff problem, there are other ways in which the war directly affects the special library. First of these is the actual shortage of books and periodicals. Details of destruction by enemy action cannot be given for reasons of national security though it is obvious that many valuable collections have suffered. Moreover many publishers' and booksellers' stocks have been destroyed and the paper shortage makes reprinting difficult. The restrictions of the Paper Control mean that new books and periodicals are published in limited numbers and delay in ordering a book of reference very often results in failure to obtain it. The special librarian must watch his loans with an eagle eye, must make swift decisions as to the purchase of new books and must cherish his existing stock as largely irreplaceable.

In some cases the fear of destruction by enemy actions has prompted the evacuation of special libraries. A few of these continue to function in their new homes but in most instances the books are dispersed in storage, thereby lessening the risk of destruction but effectively taking them out of practical use for the duration of the war. Where alternative sources of information are available evacuation may be a wise precaution, but for every library thus closed down there will be an added strain on the existing services and another headache for the special librarian who must remember which accustomed channels of information have changed their addresses or have ceased to function.

Periodicals hold a place of importance in the special library. Data for business or research must be definite and up-to-date and the periodical rather than the book will be the main source of supply. The following observations may therefore be of interest :

(1) *British periodicals prior to 1900.* Many collections have been evacuated and are inaccessible. The use of the National Central Library is probably the most useful means of location.

(2) *British periodicals from 1900-1939.* Conditions vary enormously ; some sets have been evacuated, some are accessible. Location can only be by experiment through the aid of the *World List of Scientific Periodicals*, the Science Museum Library, the National Central Library or ASLIB. It is useful to keep an index for these periodicals showing which volumes have been available and from which libraries.

(3) *British periodicals from 1939 onwards.* Complete sets of these should be guarded with care since many issues are now out of print. ASLIB will be glad to advise on the disposal of unwanted duplicates. There will be considerable demand for scientific and technical periodicals after the war to re-build the stocks of war-damaged libraries in Britain and on the Continent but the present difficulty is to find adequate storage facilities.

(4) *American periodicals.* For pre-war issues the same remarks apply as for the British periodicals. Until comparatively recent times in spite of delays in transit and occasional losses, the supply was fairly regular, but in 1942 difficulties arose. The export of scientific periodicals from the U.S.A. is subject to a licence under war conditions, and while in theory no ban is supposed to be placed on their export to this country, in practice many publishers have notified their British subscribers that export is being suspended until after the war. Even if the periodical reaches this country, it may arrive much mutilated in order to conform with American censorship regulations and it is this necessity that probably lies behind the closing down of many orders.

(5) *European periodicals.* Up to 1939 the same conditions apply as for British periodicals for the same period. From 1939 to 1940 the supply is fairly good though in quite a number of libraries import ceased on the outbreak of war. From May 1940, to January 1941, there are bad gaps in the holdings of most libraries. From 1941 to date the flow of scientific and technical periodicals has been intermittent and only a small proportion of the titles are represented. The ASLIB Location Index that is maintained at the Museum Street office is one of the quickest guides as to whether a particular issue of a periodical has reached this country and its conditions of accessibility.

The American library holdings of European periodicals for this war period are equally irregular though in some cases they have periodicals not represented on our lists.

(6) *Periodicals from the U.S.S.R.* Prior to 1939 the conditions are the same as for British periodicals. Since then the flow has been very irregular and much delayed in transit. The ASLIB Location Index covers the period from 1939 onwards and is a useful help in discovering whether the required issue is available. American library holdings are somewhat better than British up to the American entry into the war and photostat copies can be sometimes obtained from the U.S.A.

(7) *Japanese periodicals.* These are irregular and difficult to trace. No location index has been compiled. The National Central Library is one of the most useful aids in this connection.

Most of the above remarks are particularly applicable to libraries that were well-established before the outbreak of war but war needs have also brought many new special libraries and information centres into being. For these the chief difficulties are likely to be: first, the accumulation of a basic stock of reference books; secondly, a choice of classification. The first can be met by patient search coupled with resort to expert advice as to substitutes for standard books no longer obtainable. The second is most formidable where the new librarian is not fully trained and where a choice of classification has to be made without previous experience of the advantages and drawbacks of the various schemes. It is obviously undesirable to enter here into a detailed description of the chief accepted types of classification, but it cannot be too strongly emphasised that every newly formed library should adopt one of the standard systems. The adoption of a temporary makeshift is dangerous since the longer the decision to bring such a library into line with orthodox practice is delayed, the more difficult it will be to get authorisation for the expenditure of the time and clerical labour that will be involved in a change over. In this connection it may be noted that the British Standards Institution is publishing an English edition of the Universal Decimal Classification and that some of the early parts are now on sale. It is also likely that an abridged English edition may be ready in 1943, thus filling the gap caused by the fact that the useful abridgement made for use in connection with the Science Museum Library is now out of print.

Before closing these notes on special libraries and information centres in time of war, one interesting development should be noted. This is the information service of the National Council of Social Service which feeds the Citizens Advice Bureaux throughout the country. War is no longer a matter for the

professional sailor and soldier only ; there is no citizen who is not affected by rationing, by the direct or indirect effects of registration, the call-up for industry, etc. In such a world forms flourish and multiply exceedingly. The Citizens Advice Bureaux interpret these and help the man in the street to know where he stands and to obtain that aid which is often offered to him by a paternal government but is neglected through ignorance of the manner in which it can be claimed. Some further notes on the origin and development of this service will be found at the end of this Report on page 60.

FINAL SESSION.

During the final session an informal meeting was held for the discussion of matters of ASLIB interest with the Hon. Officers and the General Secretary of the Association. No detailed notes were taken but the main points were as follows :

The General Secretary summarised the services given by ASLIB to its members and drew attention to their growth in recent years.

MR. LEONARD WHARTON testified to the help that ASLIB could give to individual members and instanced an occasion when the information obtained from ASLIB had in fact corrected that received from official sources. PROFESSOR HUTTON stressed the point that ASLIB was a clearing-house for information and that its function was to direct enquirers to the appropriate source rather than to supply the data itself. He also drew attention to the interesting development, through war conditions, of the Citizens' Advice Bureaux (see page 60) which co-ordinated information on a somewhat different range of problems.

Two or three members, including MISS THOMERSON, CAPTAIN HUME and MR. AGARD EVANS, suggested that it would be an excellent plan if a course of lectures on Special Librarianship could be organised by ASLIB. In this connection Mr. Agard Evans said that he held in very grateful memory the course of lectures arranged by Dr. Cowley of the London University School of Librarianship. This included papers by many leading bibliographers, such as Professor Pollard, Mr. Besterman, Mr. Ridley, Mr. Gomme and others. He had found the varied experience which was presented to the students of inestimable value in his work and he felt that something of the sort would be of greater value than a more formal course.

MR. FREYTAG reminded members of the valuable assistance in special library problems that could often be obtained from the appropriate research associations.

MISS COULDREY suggested that ASLIB should use all its influence to encourage the appointment of trained librarians in Government Departments and deplored the present practice whereby the "librarian" was not always given the status that accorded with the responsibility of the position.

SIR ARROL MOIR spoke of the necessity to visualise the change from war to peace conditions in scientific research and argued for an immediate co-ordinated scheme of abstracting in order that post-war research workers might have to their hand immediate material for peace-time developments.

MR. S. K. JONES asked whether it would be possible to ask American publishers to stagger the dispatch of their periodical publications so that, if the orders sent to one lot of subscribers were lost through enemy action, another batch of orders might get through and be available for consultation in the country.

The Session closed with votes of thanks to the Royal Society for their hospitality, and to the Hon. Officers and the General Secretary and Staff of ASLIB for their part in the organisation of the Conference.

Report of the Seventeenth Annual General Meeting.

The Seventeenth Annual General Meeting of members and associate members was held at 11 a.m. on Saturday, November 7th, 1942, at the Rooms of the Royal Society, London, W.1.

Present : Fifty-one members and associate members were present.

Chairman : Sir Harry Lindsay, K.C.I.E., C.B.E. (President of the Association) acted as Chairman of the Meeting.

ITEM I. Minutes of the Last General Meeting.

The Minutes of the Sixteenth Annual General Meeting, having been printed and circulated in the January, 1942, issue of ASLIB INFORMATION, were taken as read. It was agreed unanimously that they should be confirmed and signed as correct by the Chairman.

ITEM II. Audited Statement of Accounts, 1941-42.

The Audited Statement of Accounts, which had already been circulated, was presented by the Hon. Treasurer, Mr. E. Lancaster-Jones. The motion for the adoption of the accounts was put to the meeting and carried unanimously.

ITEM III. Election of Council.

Under Article 25 of the Articles of Association seven members of the Council were due to retire by rotation but were eligible for re-election. In addition Sir David Chadwick, Secretary of the Imperial Agricultural Bureaux, and Miss I. Shrigley, Librarian of the Institute of Bankers, who had been co-opted to the Executive Committee during the year 1941-42, and Mr. C. le Maistre, Chairman of the Executive of the British Standards Institution, were nominated for election. Since the list of Council and Officers had been circulated, the Chairman suggested that the elections and re-elections should be taken en bloc. The proposal was carried unanimously. (The full list of members of Council will be found on page 4).

ITEM IV. Election of the President and Honorary Officers.

On the proposal of the CHAIRMAN it was unanimously agreed that Professor R. S. Hutton, D.Sc., M.A., Goldsmiths' Professor of Metallurgy at the University of Cambridge and Prime Warden of the Goldsmiths' Company, should be elected as President for the ensuing year, that Mr. Theodore Besterman should be elected as Honorary Secretary, and that Mr. E. Lancaster-Jones should be re-elected as Honorary Treasurer.

ITEM V. Election of Auditors.

It was proposed by Mr. J. J. CONLAN and seconded by Mr. T. S. LASCELLES that Messrs. West & Drake should be re-elected Auditors to the Association until the next Annual General Meeting. The proposal was carried unanimously.

ITEM IV. Report of the Year's Work of ASLIB.

The Chairman called upon the Honorary Secretary, Mr. EDWARD CARTER, to summarise the report of the Year's Work of ASLIB, now printed in full on page 11. In his survey of the very much enlarged activities of the Association, Mr. Carter paid tribute to Sir Harry Lindsay who had been President for three difficult years and whose help and encouragement would always be remembered with gratitude. The Association was greatly indebted to the help and co-operation which it had received from its numerous friends, Government Departments and Learned Societies, both American and British. Mr. Carter also wished to put on record the Association's appreciation of the work done for it by the Honorary Treasurer, Mr. Lancaster-Jones, the members of the Council, the General Secretary and the Staff of ASLIB. The report was then presented and carried unanimously.

The Proceedings were then closed.

ASSOCIATION OF SPECIAL LIBRARIES AND INFORMATION BUREAUX.
INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 30TH JUNE,

[illegible]

BALANCE SHEET — 30TH JUNE, 1942.

DR.	LIABILITIES.		ASSETS		Cr.
	1941	1942	1941	1942	
£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	
67 17 0	SUNDY CREDITORS :				
21 0 0	Current Expenses	48 8 8	CASH AT BANK	150 6 9	
	Subscriptions received in Advance	24 3 0	CASH IN HAND	3 13 4	
	Rockfeller Foundation		SUNDY DEBTORS :		
138 15 9	Balance of Grant unexpended	131 2 7	General	121 0 0	
		203 14 3	Microfilm Service	38 6 0	
			Deposit	3 0 0	
				162 6 0	
1 3 8	WORKING CAPITAL :				
44 16 0	As at 30th June, 1941	45 19 8	FURNITURE AND FITTINGS :		
	Add Excess of Income over Expenditure for the year	111 12 2	As at 30th June, 1941	45 0 0	
		157 11 10	Additions	5 5 0	
				50 5 0	
			45 0 0	Less Depreciation	5 5 0
£273 12 5		£361 6 1			45 0 0
			£273 12 5		£361 6 1

We have audited the above Balance Sheet and have obtained all the information and explanations we have required. In our opinion such Balance Sheet is properly drawn up so as to exhibit a true and correct view of the Association's affairs, according to the information given to us and as shown by the books of the Association.

Sardinia House, 52, Lincoln's Inn Fields, W.C.2.
10th July, 1942.

(Signed) WEST & DRAKE, Chartered Accountants.

THE ROCKFELLER FOUNDATION

in account with
ASSOCIATION OF SPECIAL LIBRARIES AND INFORMATION BUREAUX
"Enemy Periodicals Project"—Year ended 20th May, 1942

Dr.	£.	s.	d.	Cr.
To WAGES, SALARIES AND BONUS	225	9	5	£. s. d. 450 0 0
" CONTRIBUTION FOR RENT, LIGHTING, ETC.	28	0	0	
" TYPEWRITER	18	18	0	
" PRINTING AND STATIONERY	25	13	6½	
" POSTAGE	16	2	8½	
" TRAVELLING EXPENSES	1	10	8½	
" ACCOUNTANCY	3	3	0	
" BALANCE CARRIED DOWN	131	2	7½	
	£450	0	0	£450 0 0
				131 2 7½
				By BALANCE IN HAND, BROUGHT DOWN

We have prepared the above account from the books and vouchers of the Association of Special Libraries and Information Bureaux and certify that it is correct and in accordance therewith.
Sardinia House, 52, Lincoln's Inn Fields, W.C.2.

(Signed) WEST & DRAKE, *Chartered Accountants*.

Reports.

THE NATIONAL CENTRAL LIBRARY.

In common with ASLIB and many other bodies associated with the supply of information, the National Central Library is making an important contribution to the nation's war effort. It is a centre which is used by Government Departments, research stations, and industrial concerns, and is a channel through which books necessary for war purposes are being supplied. At the same time it ensures that essential information is available to those engaged in agriculture, trade, and business of every description.

Among special war work now being done by the Library, mention may be made of the scheme organised at the request of the Army Education Department of the War Office for the supply of educational books to men serving in the Army in all parts of the British Isles. A similar service is being given to men serving in the Royal Air Force and in the Mercantile Marine. This help given in this way has been much appreciated, especially by men who are trying to continue their professional studies. At the request of the Home Office, the Library has organised a service for the supply of educational books to aliens in internment camps, and, with the assistance of the British Council, it has been instrumental in supplying books in their own language to service men and civilian refugees from Allied countries. A good deal of bibliographical information has been supplied to the Prisoners of War Book Service organised by the British Red Cross Society and Order of St. John.

In all this work the Library has, as in normal times, received invaluable assistance from other libraries and bodies. Not the least help has been that given by ASLIB, which has often provided a vital link in a chain of enquiry. It may be of interest to quote the following example of this help. A telephone request was received by the National Central Library from a Government Department for "*The Crown*, 1939, Number 2; article on Natural Resins, by Warth." No information about the periodical could be traced, although a reference in *Chemical Abstracts* gave the volume number and pages of the article. Inquiries were accordingly made on the telephone, but neither the Science Library nor the Patent Office, nor any of the outlier libraries consulted, could give any information about the periodical. From an inquiry made of ASLIB it was discovered that *The Crown* is the house journal of the Crown Cork and Seal Company, of Baltimore. A telephone inquiry of the U.S.A. Commercial Attaché failed to produce any information about that Company, but the U.S.A. Chamber of Commerce supplied the information that the firm had an English branch at Southall. As the result of a telephone message to that branch the volume containing the article was at once posted, and the Government Department concerned received it within forty-eight hours of the original inquiry. Without the link supplied by ASLIB it is possible that this application might never have been successfully dealt with.

In April, 1941, the Library suffered serious damage by enemy action, but in spite of the loss of two-thirds of its building and 60 per cent of its books the service continued without interruption. Fortunately the union catalogues and all the important bibliographical material, including that of the Bureau of American Bibliography, had been removed to the country on the outbreak of war, otherwise much valuable and irreplaceable material would have been lost.

THE CITIZENS ADVICE BUREAU—A NEW ADVANCE IN SOCIAL SERVICE.

As a nation-wide service, the Citizens Advice Bureau represents a new advance in the social services. It is based on the knowledge and experience of a group of voluntary societies associated with the National Council of Social Service, who for nine months before the outbreak of war were planning the establishment of a service of information and advice for every citizen.

On September 4th, 1939, some 200 Citizens Advice Bureaux were opened in various parts of the country, since then there has been a steady growth and there are now over 1,000 of these bureaux situated in all main centres of population and in many market towns and other centres of rural life. The number of questions and problems brought to the bureaux increases steadily and it is now estimated to be something like two and a half million a year.

The object of the Citizens Advice Bureau is to provide a place to which any citizen can turn for information and advice, not only on some simple point such as clothes rationing, but on complicated family and personal problems which need discussion with skilled and informed workers.

The service of the bureau is free; facilities are given for privacy; and the confidence of the inquirers is fully respected. The Citizens Advice Bureau Service has its headquarters at the National Council of Social Service. It has the support of the government departments. Through the National Council of Social Service, the Ministry of Health gives a certain amount of financial assistance to the bureaux.

The Citizens Advice Bureau Service, staffed largely by amateurs, has solved the problem of providing authoritative and reliable information. This is achieved by close co-operation with the public authorities both at headquarters and by the local bureaux themselves. The National Council of Social Service is in direct contact with the government departments and receives from them copies of the various orders and instructions affecting civilian life, which are issued

almost every day. In addition the National Council of Social Service makes use of other sources of information, such as the Press; and, of course, a careful study is made of the proceedings in Parliament, particularly the official answers given to questions asked in the House of Commons and the many complicated Acts which deal with civilian matters. The local bureaux are in touch with their local authorities and with the local officers of the various government departments; e.g. the Food Office and the Inland Revenue Office.

War has broken up many families, as a result of evacuation, call-up for the services, transfer for war work and for other reasons. In addition shortage of supplies and war conditions have made it necessary for the State to control the lives of individual citizens and their conduct and their purchases in a way which has never before been necessary in a free country. Thus it is, that many people to-day are in need of skilled and well-informed help in meeting these new complications of a people at war. It is to meet this need that the Citizens Advice Bureaux were created. Fundamentally the bureau is a local unit, based on the local community, staffed largely by volunteers from the locality, controlled by a local representative committee, financed largely from funds raised by the local community; at the same time drawing its strength from being part of a national service organised on a nation-wide basis and supported by the authorities of the great government departments and other national organisations.

Appendix.

DISCUSSION FOLLOWING PAPERS BY MR. C. H. C. OSBORNE AND PROFESSOR R. S. HUTTON.

The Chair was taken by PROFESSOR EGERTON, Secretary of the Royal Society, who expressed appreciation of the invitation to occupy the Chair, and also of the opportunity to greet members of ASLIB in the Royal Society's rooms.

He said that the Royal Society's object was to promote natural knowledge, which it could not do without the existence of laboratories and libraries. The Royal Society was, therefore, interested in the organisation and welfare of libraries. Its past Presidents indeed had had much influence on the history of libraries in this country—Dr. Hans Sloane and Sir Joseph Banks in particular. The history of the British Museum Library was closely associated with the names of these two past Presidents. Sir Charles Sherrington's interest in the Royal Society's Library had also been of great value.

The Royal Society had had occasion during the past year to be associated with ASLIB in several important matters. One of these had been the promotion of the use of the microfilm, another the availability of foreign periodicals. Microfilm was playing a more and more important part in the service of the research worker, in the dissemination of scientific literature, and in the rapid transport of technical information across the Atlantic, and the present war was making us more acquainted with its possibilities. Professor Egerton expressed gratitude to the Rockefeller Foundation for the supply of apparatus for use with microfilm and said that he had no doubt whatever that microfilm was going to be a great aid to the scientific worker.

To-day, to be dealt with by Mr. Osborne, and by Professor Hutton in his Presidential Address, was the training needed in the use of libraries. Professor Egerton had noticed the mention of "browsing." This had always seemed to him a very important pastime, and a library amenity which was not only delightful, but also valuable. Many a time he had gone, with a list of things that he wanted to look up, to the Radcliffe Science Library at Oxford, and had come away without having looked up his references, but with much more valuable ideas derived from promiscuous "browsing!"

Training, however, in the use of a library was more important than training in the use of a reference book. The late Mr. Clifford, the Librarian of the Chemical Society, whose loss was deeply felt, had told him that the *Annual Tables of Constants*, with which he (Professor Egerton) had much to do, was not being much consulted. Professor Egerton felt that the reason was that *how* it should be used was not understood. It was the same with a library—one was lost on entering a new library—it was rather like joining a club—but there were certain general rules which, if they were known, could soon make one at home. The ASLIB Conferences could do much to facilitate the use of libraries.

In the discussion upon MR. OSBORNE'S paper the following took part: Professor R. S. Hutton, Mr. F. M. Gardner, Mr. W. L. Cooper, Mr. H. Rottenburg, Mr. F. C. Francis, Miss E. W. Parker, Mr. L. M. Harrod, and Mr. G. A. Shires.

PROFESSOR R. S. HUTTON thanked Mr. Osborne on behalf of the whole Conference for presenting such an excellent review of progress in teaching the use of libraries in schools. The objects of ASLIB would be helped by introducing children at an early age to the first stages in this teaching. He had examined some of the books referred to, and had the impression that in one or two cases they were too advanced for school use. It was important that a sound foundation should be laid, but advanced bibliographical works and the use of many reference books could only be undertaken profitably when general studies had taught a University, or at least a post-school, standard.

MR. F. M. GARDNER added some notes on libraries in Elementary Schools, with special reference to Luton, where experiments had been conducted during the past three years,

particularly in providing collections of special books from the Adult Lending Libraries for research in schools. The consequent higher standard of essay-writing was an interesting result. Classes from Elementary Schools had also visited the Public Library for instruction, and talks had been given at the schools by the Children's Librarian. Owing to black-out and transport difficulties a decision was made to transfer all children's libraries to the schools, in the hope of restricting use of the Children's Library in the centre of the town. Surprisingly, however, issues at the Children's Libraries did not decrease, and those at the school libraries served to double the normal issue, proof of Mr. Osborne's contention that the bookish child will find books wherever they are whereas the non-bookish child needs special help. Public libraries could be a great help in co-ordinating educational experiments.

MR. W. L. COOPER thought that "booklore" might include knowledge of printing, binding and care of books through the centuries, and might be linked up with binding and printing as handicrafts; also that special needs justify "home-made" classification in some cases.

MR. H. ROTTENBURG indicated the value of cross-word puzzles, such as those published in *The Times*, which give a large selection of types of research. He thought that one part of the two older Universities exerted a subtle influence against the use of libraries, in that those aspiring to fellowships for original work were apt to leave the library out as it recorded what had been done, and original work was concerned with what had yet to be done.

MR. F. C. FRANCIS felt that the main task was to get children to read at all, and he hoped that too much attempt would not be made to turn young children into research students.

MISS E. W. PARKER urged the practical importance of teaching children to regard books as "tools of production." The curriculum referred to by Mr. Stott seemed specially well adapted to make the child "book-conscious" in relation to all branches of knowledge. Experience with young people entering on their careers suggested a need for selected libraries of books to dovetail into the school curriculum, more readable than average text books, and affording scope for individual study. Thus a child would come to regard books as a storehouse of widely varied information, and would develop a habit of consulting books on any matters of current interest. She urged such training as a feature of post-war education.

MR. L. M. HARROD suggested that, as 90 per cent of school children would not pass to the University, it was desirable that the system of classification in School Libraries should be one in general use, which would prepare them for using Public Libraries. As the majority of Public Libraries use the Dewey system, the modified Dewey system was undoubtedly the best for use in schools.

MR. G. A. SHIRES pointed out that library training for teachers was more properly within the scope of the next paper, and that if Professor Hutton's plea were followed up, science masters and others could become more qualified to stimulate library interest in their pupils. He also suggested that ASLIB should try to arrange a broadcast talk to assist the public in the proper use of Public and Reference Libraries. As for the crossword puzzle as a mental exercise, Mr. Rottenburg would be interested to know that it has been very successfully used in English classes for A.T.C. cadets.

At the close of the discussion Mr. Osborne said that he had been particularly glad to hear of Mr. Gardner's experience at Luton in the value of taking children's libraries into the elementary schools. He agreed with Mr. Cooper that the use of libraries should be part of the curriculum at Teachers' Training Colleges and in University training departments; it was as important for all teachers to have such training as it was for those intending to be school librarians. "Booklore" in schools frequently did include the study of printing and binding and was linked with handicrafts; in more than one school the children published and printed their own "Library Review." With regard to classification, some schools preferred the Cheltenham Classification or Bliss to the Dewey system, and he thought that children once made really familiar with any standard classification quickly learned their way about another.

UPON PROFESSOR HUTTON'S paper the following took part in the discussion: Dr. W. Bonser, Dr. S. C. Bradford, Mr. W. L. Cooper, Sir Arrol Moir, and a representative of one of the University Colleges.

DR. W. BONSER explained how instruction in the use of the Library was given in the University of Birmingham. At the beginning of the session he gave a public talk to all "freshers," detailing the resources of the library, its classification, rules, etc. He then took these students round the library in groups of not more than twenty, if possible accompanied by the lecturer concerned so that no points from either the teaching or the library side were missed. He also made a point of personally conducting each new member of the teaching staff round the library, so as to indicate the research material available in his (or her) subject.

DR. S. C. BRADFORD deplored the absence of Subject Catalogues from many large Libraries. When the student did not know the name of the author of a specific work on his subject, he was lost completely; no amount of instruction could overcome this impasse. The remedy was in the hands of readers themselves. Insistent repeated demand would compel the Librarian to produce a Subject Catalogue. Some larger Libraries had good Subject Catalogues, e.g. The British Museum Library, the London Library, the Library of the London School of Economics, etc. Even if the whole of the Library's books could not be catalogued by subject immediately, new accessions at least could be treated as received, thus producing a Subject Catalogue of recent books. Such a Catalogue was easily made by printing the appropriate

Subject Classification symbols on the Author Catalogue titles, afterwards cutting them up and rearranging them by symbol.

With regard to periodicals, information contained in these was already indexed to a considerable extent by published bibliographies, various lists of which exist. Mr. Besterman's comprehensive *Bibliography of Bibliographies* was outstanding. Bibliographies, like libraries, however, lacked organisation, but the insistent growing demand for co-ordination would bring it about in time.

Information services, which were based on bibliographies, published and home-made, encountered the same difficulties. An eminent scientific administrator had reported to Dr. Bradford almost complete inability to obtain any useful references on his subject from any source other than the Science Library; while the result of a test by the Dutch Institute of Documentation was that the Science Library supplied more additional references than any other service tested. In his own experience, of the 0.3 per cent enquiries which could be not answered, some were due to bad arrangement of published bibliographies. The Science Library information service, administered by scientific experts as trained information officers, is based on fifty million references. The Central Agricultural and Scientific Bibliography Committee tried to collect funds to provide more information officers, but failed. Development of this general scientific information service to any desired extent depended on demand.

The conclusion is the same. Without asking for them we should not have, or deserve, adequate library, bibliographical or information services. Instruction was needed in the kind of library service to ask for.

MR. W. L. COOPER expressed the opinion that Library Training ought to figure in the Universities' curricula for the Diploma in Education. He agreed that more systematic instruction should be given to University students, but thought that Mr. Osborne's paper underestimated the amount and value of informal instruction already given. In his opinion Professors and lecturers in specialised subjects were the appropriate instructors.

A speaker from one of the University Colleges emphasised lack of library staff as the reason for the undesirably early closing of some college libraries, also that many members of library staffs were too overworked to be able to undertake teaching as well. University Library Committees were unfortunately often the last to read appropriate passages in relevant publications.

ADDITION TO MR. BESTERMAN'S PAPER

ADDENDUM.

Since the above was written and set up the H. W. Wilson Company have very kindly sent me information which enables me to add this note on the finances of the *Union List*. The original edition was financed by about forty of the largest American libraries to the total extent of \$48,000, for which each library received twenty-four copies of the published work. The Rockefeller Foundation, by making an outright grant of \$46,500, made it possible to drop this rather inconvenient plan in connection with the forthcoming new edition, which is twice the size of the original one. Work on this new edition, which is practically ready for publication, began in 1937, with Winifred Gregory as chief editor. A rough analysis of the cost shows the following: editorial expenses (chiefly salaries), \$66,000; printing 2,500 copies, \$45,000; publishing expenses, \$18,000. Thus the total of \$129,000 exceeds the Rockefeller grant by \$82,500, which large sum has been found (only, I hope, by way of advance) by the Wilson Company. A deficit on the first edition of just on \$5,000 also has to be brought in. Hence, to make ends meet, it will be necessary for sales to bring in about \$90,000. I do not know whether this figure is attainable, but it seems doubtful.

It would be premature to draw up at this stage a comparable budget for the proposed British list; I will content myself with saying that I am satisfied, after careful calculation, that such a union catalogue as I have described can be compiled and published with a net loss of about £5,000.

DISCUSSION FOLLOWING MR. BESTERMAN'S PAPER

The Chairman, DR. L. NEWCOMBE, felt that the question, "What is a periodical," was one of the many matters of detail—such as alphabetising, cross-references, whether the catalogue should be limited to located periodicals only, and many minor points—which might well be left for a group of experts to report on.

Mr. Besterman's first point, "Is such a catalogue needed?" raises the question whether a union catalogue or a union list were proposed. There was a good deal of difference; the function of a union list was merely to locate periodicals, whereas a union catalogue gave additional bibliographical information, e.g. full original title and all changes of title, volume

numbers, place of publication, dates, and any useful bibliographical notes. He hoped that Mr. Besterman had in mind a catalogue. Another point, by the word "needed" did they mean essential or merely desirable? Would a union catalogue as complete as possible on cards at the National Central Library suffice? This would provide almost immediate tracing of a periodical, be more up-to-date than a printed catalogue, and save cost of printing, although that cost might be more than balanced by sale of copies. The National Central Library already had many thousand references which appeared in no printed catalogue.

"Is it possible?" to him the answer seemed to be definitely "Yes," but only on condition firstly, that the funds were forthcoming, and, secondly, that some person or persons with any amount of energy and spare time would undertake the compilation.

He doubted Mr. Besterman's suggestion that nearly all periodicals existed somewhere in a British library, judging by the considerable number of periodicals—more especially foreign—that the National Central Library was from time to time unable to locate. This, however, gave Mr. Besterman one more argument for a complete union catalogue of such periodicals as did exist, in order that gaps might be known and perhaps filled.

Some figures of the cost of existing catalogues might be of interest. What the *World List* cost he did not know, but the income, apart from sale of copies, included grants totalling £1,700. The cost of printing and binding 600 copies of the *Union Catalogue* was £650, and the amount received from the sale of 392 copies to date had been £960. The balance of £310 covered only a portion of the cost of compilation.

The following contributed to the discussion: Dr. S. C. Bradford, Mr. H. Rottenburg, Dr. W. Bonser, Professor R. S. Hutton, Mr. E. Lancaster-Jones, and Mr. E. Carter.

DR. S. C. BRADFORD described Mr. Besterman's definition of a periodical as the only sensible one that he had seen in print. He recommended his own definition of a periodical, evolved for use in the Science Library, to Mr. Besterman's consideration, because it eliminated the necessity of defining what he meant by a single "work." It was: "A periodical is a publication issued in parts at regular or irregular intervals, with no intention to cease publication when a particular limited subject has been covered."

Dr. Bradford agreed as to the necessity of a subject index. This could be made very swiftly by adding the Decimal subject number to each entry, as well as a cardinal number, and making a list of Decimal numbers in order with the relative cardinal numbers added to each.

He stressed the need for very careful consideration of the rules for writing the catalogue titles of the periodicals. The only known completely logical and unambiguous rules for arranging the titles of periodicals were the two simple rules of the British Museum Catalogue. As the British Museum Catalogue would provide the largest contribution to Mr. Besterman's Union Catalogue, the least difficult course, and that which he would most strongly urge, would be to adopt its rules and to make all other titles conform.

MR. H. ROTTENBURG, on the question of cost, said that the war had shown the need of the question, "Can we afford not to do certain things?" George Sava's wonder, in *School for War*, how the flood of publications preceding the war failed to draw our attention to Germany's goal, seems almost an accusation against our library and similar bodies. Probably future world movements would be heralded by a similar advent of publications which must not pass unheeded.

DR. BONSER asked the Chairman if the various libraries whose holdings of periodicals were recorded in the *Union Catalogue* had duly sent in additions and corrections so that they might be recorded by the National Central Library. (The reply was affirmative—at least until the beginning of the war). He also explained, as one of its editors, why certain periodicals, such as University Calendars and civic reports, were excluded from this catalogue—it being necessary to save space and quite obvious where such works should be sought. He warmly supported Mr. Besterman's suggestions, even if it were not possible to publish.

PROFESSOR R. S. HUTTON welcomed Mr. Besterman's ambitious proposals and drew attention to the fact that the plans for the first edition of the *World List of Scientific Periodicals* only contemplated noting their existence in the six copyright libraries. Fortunately as a condition of their support the Carnegie United Kingdom Trustees insisted on a much wider survey. The plan now put forward showed how far our ideas had progressed in the last twenty-five years.

With the *World List* one of the most valuable effects was to expose the national *lacunae*, and stimulate libraries like the Science Library to make them good as far as possible. He asked whether it would not be possible to plan in advance a similar function for the proposed *Union Catalogue*, by issuing an advance edition, or rough proof sheets, leaving an opportunity for gaps to be filled up before the Catalogue was published?

Dr. Bonser proposed, Dr. Bradford seconded, and the meeting adopted a resolution as follows: "That the Executive Committee be asked to appoint, when the time would appear opportune, a representative Committee (not necessarily all members of ASLIB) to prepare a detailed report on the desirability and possibility of compiling, either in printed form or in manuscript, a complete union catalogue of periodicals in all British libraries."

DISCUSSION ON PAPER BY MR. LANCASTER-JONES.

From the Chair, COLONEL E. E. B. MACKINTOSH said that the merit and value of microfilm as a working tool both in research and librarianship has been abundantly proved for many

years in other countries, particularly in the United States. In this country, in spite of good work by Mr. Power, or say Kodak or Ilford, realisation or appreciation of the many possible uses of microfilm was scant. At last—and here, Colonel Mackintosh said, he paid the most deserved tribute to ASLIB—a start has been made, though it seemed to be a national characteristic that it took a very long time of gestation before any new conception could come into being and burgeon as a real live thing.

MR. H. ROTTENBURG referred to the ambiguity of the word Microphotography, the older meaning having been “to photograph a small object and produce an enlarged picture of it,” whereas the present use was the reverse. It would seem desirable, he said, to standardize the meaning so as to show which process was referred to. At a meeting of the British Society for International Bibliography, Messrs. Kodaks were stated to have found and preserved a specimen of the earliest microfilm as used during the siege of Paris in 1871. The French also produced, in the 1880's, a microfilm in the form of inserts in souvenirs, which was a disc not more than 4mm. in diameter, mounted on a small lens giving an enlargement of about 37 diameters and sold to souvenir makers for a few pence.

MR. B. AGARD EVANS said that it seemed important to know something of the elementary technique of handling and sorting microfilm records, and suggested that ASLIB, or Mr. Lancaster-Jones should produce an elementary treatise on this subject.

DR. V. E. PARKE said that articles in the *Journal of Documentary Reproduction*.¹ had been very helpful in his work with the microfilm. Finding that manufacture of the Argus Reader had ceased and that licences to import other American Readers were not obtainable, he had made one of his own. He preferred the type using a simple beam (the Student's type) to that using a reflected beam such as the Argus. The former was in the end little, if any, bulkier; it did not involve any risk that the worker's hand might touch the very hot lamp housing; it provided automatically for shielding the image from extraneous light and it gave an image by reflection and not by transmission through a screen which could introduce distortion. The Reader depended essentially on a good quality lens of about 2 inches focal length and a reliable condenser which could be used to hold down the film. A 6-volt car head-lamp was used to give a small light source and the necessary transformer was fitted in the base below the reading screen. Having the optical apparatus and having decided on the type of reader required, the design was not a serious problem; it could readily be worked out by trial and error using wood and paper models. As the material most likely to be used was in short strips, no winding gear had been fitted but the adjustments necessary to provide it would not be difficult.

The resultant Reader was admittedly neither so neat nor so readily portable as the Wray Reader on view at the Conference, but it was made before Messrs. Wray could promise delivery at all and it gave a field 17 inches square which allowed of the projection at full size of two successive pages of all the usual journals.

Quite plainly, at least at present, 35mm. film was standard and that was used for his library. The matter was mostly short articles so that storage in strip form seemed most convenient. After discussion with Dr. Sayce's colleagues at King's College, Newcastle, who had been most courteous and helpful, their methods were adopted. Strips of film about 9 inches long were used, on which the articles were photographed two pages at an exposure with the lines of print running along the length of the film, the so-called “format D.”² The strips took ten pages with a titling frame which contained particulars necessary for identification or filing and which was arranged to be read with the naked eye by holding the film up to a light. Envelopes of about 1 $\frac{7}{8}$ by 9 $\frac{3}{8}$ inches, open along one side, were used to store the strips. Up to ten could easily be put in one envelope, and the title, author and source of the material could be typed on the outside. A small drawer will hold large numbers.

¹ *Journal of Documentary Reproduction*—2, 1939, June, pp. 129 139.

December, pp. 286-289.
3, 1940, March, p. 55.

June, pp. 99-103.

September, pp. 153-168 and 198-199.

December, pp. 258-262, 280 and 285.

² *Microphotography*: Standards in “Format” Storage and Cataloguing; Page, Sayce and Patterson; Library Association Record, May, 1938.

MR. L. M. HARROD enquired whether the compilation of a union list of microfilms and manuscripts had been considered or was being undertaken.

MR. J. H. BENNITT, speaking as a private member, said that he cut up film and stored it in U.D.C. order according to subject. He suggested enlargements to standard sizes. He, himself, had photostat copies of key papers made to post-card (i.e. card index) size, so that they were readily filed with card abstracts.

MR. F. C. FRANCIS drew attention to the possible future substitution of film copies for books in some libraries. He hoped that wherever an original was consequently being disposed of, it would be dispatched to the British Museum, because in many cases, especially in the solution of bibliographical problems, an original was essential.

MR. THEODORE BESTERMAN, in addition to making a number of technical suggestions, expressed fear that the uses and status of microphotography seemed in danger of being

exaggerated. The reproduction for general use of documents not otherwise available was an essential service. The safeguarding of rare records, manuscripts and books was a similar use. However, when this valuable auxiliary began to be elevated to an end in itself and to be talked of as a short cut in research, it was necessary to cry halt. The microfilm was merely an improvement in technique; it might lighten the drudgery of research in some of its tasks; but it could never do more than that, and it was dangerous for the microfilm cause itself to talk as though it could.

MR. R. BRIGHTMAN warmly supported the suggestion for some simple primary instructions regarding the use of the films and viewers.

MR. F. J. TRITTON expressed pleasure at the interest being taken in micro-copying and felt it was a great pity that there was such a shortage of British-made apparatus. Particularly cheaper and better readers are essential.

He made a particular plea for the creation of some body to organise publication by microfilm of scientific articles whose circulation would not justify printing in the normal manner. As this must be done by some body with an established future, he suggested that ASLIB was a suitable organisation.

Those considering the use of micro-copying for the preparation of a bibliography on some particular subject are satisfactorily served by a filing system involving the cutting up of the film into short lengths and slipping into envelopes on roinch by 8 inch cards which can be stored in book form or in drawers. But for Librarians copying complete books, particularly books of reference, something more than a straightforward photograph is required, as indicated by Mr. Lancaster-Jones, but it is no use each photographer adopting his own method. Careful consideration of the problem by ASLIB would seem to be indicated.

Finally it was easy to see that flat film had certain distinct advantages over continuous rolls, but where a long book was to be copied there would either be so many flat sheets that the filing problem again became serious or the degree of reduction would have to be so great as to be unsatisfactory or to require a special lens system. Further duplicates have to be made by contact from the flat sheets and where the detail is very fine this involves real problems which call for special attention. He felt that for the present rolls of film, if used properly, had advantages.

MISS A. M. MOSTEL suggested that, to avoid overlapping of translation work, translations on the principles of good technical translations advocated by Dr. J. E. Holmstrom in a paper read at the Fourteenth ASLIB Conference, viz., by a linguist and checked by a technical expert, be made available to potential users by means of microfilm. She suggested that, when such a translation has been made, ASLIB be notified for this purpose.

MR. J. H. BENNITT made a plea for an up-to-date index of translations made both here and in America, by Government Departments and private firms, to be kept and made available to authorised users.

As an improvement on the methods already discussed of filing microfilm for reference purposes, MR. P. WHITE suggested an adaptation of the method already satisfactorily in use of synchronising mechanical pictures with the speech on recorded lectures, so that when the appropriate words are spoken the picture referred to appears. By use of the sound track imposed upon the edge of the film, one could run the roll through the projector and it would automatically stop at any desired frame or frames, no matter where it was situated in the total length of film. By use of the U.D.C. or Dewey system roll and frame Nos. could be recorded on the appropriate subject card. The advantages of this method would be ease of storing, i.e. in tins, as with cinema film; no special equipment required, and less space occupied; ease in transport (i.e. in loaning or exchanging between libraries or firms); reduced fire risk; location by index only, with no loss of time in scanning. The last-named advantage is one which should appeal to industrial and research organisations. Mr. White said that he knew that, in war-time this innovation would be regarded as unnecessary, but the thought of this development should be kept in mind if efficiency in peace-time was to be planned.

At the close of the discussion Mr. Lancaster-Jones replied that in regard to Mr. Agard Evans' invitation to ASLIB or himself to produce a guide to the technique of handling and sorting microfilm records, he feared that he could not himself claim any great experience. There was a good prospect that ASLIB would be able in the not too distant future to produce some such guide, probably with the help of a Committee of the British Standards Institution, which latter was actively engaged on matters of storing microfilms and standardization of microfilm equipment.

Dr. Parke's contribution to the discussion had considerable relevance to Mr. Evans' problem, but he would suggest that caution should be exercised in committing oneself to this matter of standard lengths of runs for cut-up strips. Modern cameras had very flexible apertures that could extend up to well over the length of the 36mm., along the film, that was normally used in format B.

The natural curl of film strips could be largely corrected by filing two strips face to face. He found that, if a series of strip-films were folded in turn, alternately back and front, within a long sheet of thin paper, the resulting packet was reasonably rigid and flat, even if the strips only overlapped over half their width, and had the titling frames at the ends left exposed to permit rapid reference of each strip on the lines of a visible index.

On the general question of flat films versus roll films, with special reference to questions of picking up quickly some particular frame or frames within the body of the text, Mr. Lancaster Jones found that the system of a succession of multiple images in miniature in rows and columns upon a large flat sheet of film presented an illusory picture of simplicity. Actually, whereas in the roll of film, the mechanical difficulty was to run through the roll with rapidity and with the certainty of hitting upon the precise spot required, this difficulty was small compared with the corresponding problem of manipulating either the sheet of film or the projector in order to attain the desired frame upon a flat sheet. Mr. White's suggestion of a sound track guiding system was one that appeals to him as a scientist, but he was a bit dubious as to the prospect of libraries having talking film as a means of individual research. He thought that an optical signalling system had obvious merits in a reading room devoted to research.

DISCUSSION FOLLOWING PAPERS BY MR. B. M. HEADICAR AND MR. J. E. WRIGHT.

From the Chair Mr. T. R. DAWSON expressed appreciation of Mr. Wright's obvious help to the young and uninitiated. He thought the reference material in the several volumes of the International Critical Tables more satisfactory, however, than in "Kaye and Laby." In two major points the practice in the Rubber Research Intelligence Division differed conspicuously from methods proposed by Mr. Wright. Firstly, if Mr. Wright's clientele was constantly breaking in clamouring to seek its own information, it would be a matter of self-protection, at least, to educate them as rapidly as possible. Mr. Dawson's interrogators, however, came largely from organisations scattered all over the country, who wanted, not access to his records, but the records themselves—predigested and served up hot for consumption. Consequently, the one thing he found helpful in the way of education was to teach his clients how to ask questions. He had to deal with many ambiguous, indirect or obscure questions which demanded much cross-questioning to discover what was really wanted; with unsophisticated questioners asking questions of enormous generality which would need an encyclopædic answer or several thousand references; with the ultra-suspicious questioner who tried to disguise what he really wanted under a clutter of irrelevancies. Instruction in how to ask questions was a real trouble saver.

Secondly, Mr. Dawson emphasised that the one really easy way to answer a question was to have the answer indexed before the question was asked. In his opinion every special library should aim at this ideal, which, though expensive, toilsome, and heartbreakingly difficult, gave overwhelming returns in efficiency, satisfaction and hard cash. Practically from the beginning, Mr. Dawson began building up his own name- and subject-indexes in the most thorough-going way he could conceive, which year by year had more and more superseded all journals and reference works as a first source of information. From some 2,000,000 references accumulated in thirty years almost every enquiry now received could be dealt with immediately from these indexes.

In the discussion the following took part: Mr. B. Agard Evans, Miss E. W. Parker, Mr. L. M. Harrod, Mr. G. A. Shires, Mr. E. Lancaster-Jones, Mr. T. Besterman, Mr. L. C. Wharton and Dr. S. C. Bradford.

MR. AGARD EVANS described a method of reproduction of subject-index cards which had been in use for some time in his libraries. For each accession a report sheet was made, upon which all action, including subject-index entries, was noted. From this accession list were typed author cards and subject-index cards. Where the number of cards exceeded six, it was advantageous to use the Jellograph. The accession list, with full bibliographical details, location number, etc., was placed on the jelly and two or three copies of the required entry turned off, the remaining matter being masked. The "tops" only of the cards remained to be typed. One advantage was that once the original accession list had been checked, errors in the body of a card were impossible.

MISS E. W. PARKER recommended the Ormig reproducing machine for the duplicating of index cards, as efficient, robust, and low in running and maintenance costs.

MR. L. M. HARROD stated that Sharp's "Cataloguing" (the standard book on this subject) contained illustrations and a description of the Ormig duplicator, which had been found particularly useful in the duplication of cataloguing entries.

With reference to Mr. Headicar's remarks on a publishers' censor, the Chairman suggested that to insure statutory orders governing economic practice in the make-up of books was really the business of the Paper Controller.

Referring to the demonstration by Mr. Headicar of repairing a book of which the cloth back had become detached, MR. A. E. CUMMINS suggested an alternative method. By slipping a paper-knife between the cloth and the board of the book covers, separating them from each other from top to bottom to a width of two or three inches, and pasting the new strip between cloth and board instead of over the cloth, a neater repair could be made when the original back was replaced.

The meeting closed with a vote of thanks to the Chairman, proposed by MR. G. A. SHIRES and passed with acclamation.

Index.

NOTE.—This is not a complete subject index to the contents of the papers, but only to the names of speakers and the titles of papers, etc. Copies of fifteen previous Reports can be obtained from the office of the Association.

	PAGE
Agriculture and the War Stimulus	37
ASLIB:	
Annual Accounts	57
Annual General Meeting	56
Book-List	12
Bulletin	13
Council	4
Enquiry Bureau	13
Executive Committee	11
Finance and Membership	12
Location Index to Periodicals	12
President	11
Report on Year's Work	11
War-time Guides	12
BESTERMAN, THEODORE	30
Books and Periodicals, War Time Problems in	40
Citizens' Advice Bureaux	60
DAWSON, T. R.	67
Discussions	61
DITMAS, E. M. R.	52
EGERTON, PROFESSOR A. C.	61
Final Session	55
HEADICAR, B. M.	40
HUTTON, PROFESSOR R. S.	27
GREGORY, SIR RICHARD	14
Instruction in Library Use ; a needed addition to the University Curriculum	27
International Systems and Standards	14
Introductory Note	10
LANCASTER-JONES, E.	34
Libraries, Microfilms in	34
Libraries, Training in the Use of	21
Library Use, Instruction in	27
LINDSAY, SIR HARRY	11
MACKINTOSH, COL. E. E. B.	64
Microfilms in Libraries	34
National Central Library	60
NEWCOMBE, DR. LUXMOORE	63
ORWIN, C. S.	37
OSBORNE, C. H. C.	14
Proposed Union List of Periodicals in British Libraries	30
Addendum to above	63
Some Methods used in the Special Library of a Research Department	43
Special Library in Time of War, The	52
Special Library of a Research Department, Some Methods used in	43
Training in the Use of Libraries as Part of the School Curriculum	21
Union List of Periodicals in British Libraries, Proposed	30
War Time Problems in Books and Binding	40
WRIGHT, J. E.	43
Year's Work of ASLIB, Report on	11